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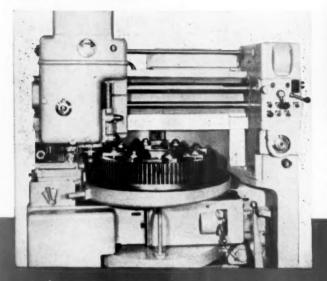
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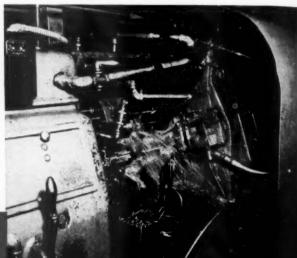
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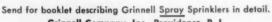
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Adjusting to New Levels

THE classic theories of economics, which no one has yet successfully refuted, show it to be a self-correcting process, often ruthless in its operation yet leading eventually to a state of balance that can be maintained with reasonable stability. That equation can be, and is, balanced at varying levels. The economic welfare of a nation depends on the ability of its people to adjust themselves to this situation and to direct their efforts toward working with the beneficial factors that tend to raise the level, rather than defying the equation and setting up internal stresses that result in a sort of stability roughly equivalent to that of an uneasy atom.

It has long been apparent that our economy has been at an unnaturally inflated level, due to the waste of war, the waste of farm production, the waste of prodigal government spending supported by a tax structure that has encouraged waste in industrial operations. It was easily predictable that the business level would decline when these wastes were modified or eliminated. There is evidence that this process is now in effect.

Yet there is equally striking evidence that the adjustments are being made which will keep the recession in volume within reasonable bounds, and will avoid the more serious consequences usually associated with such a development. Management is confident, and competent.

Business is good—exceptionally good by prewar standards. Employment is at record high levels, and unemployment correspondingly low. The weeding out of wasteful employment has been taken in stride—has, in fact, channeled much of this manpower into more useful and productive fields, including the research, development, and administrative work that give production its practical and economic utility. The new crop of high school and college graduates has been painlessly absorbed into business and industrial and professional pursuits, and is better equipped to take its part than any previous generation.

The index of productivity is holding well above the trend line of the past half century, which shows an average annual rate of increase of 2.1%.

And the reports of corporation profits indicate that management has found, at least in part, the answer to high break-even points, which were a serious hazard even while they were obscured by high level operations.

Value buying—the outstanding recent development in professional purchasing—is contributing substantially to the new adjustment. On the selling side, our August Purchasing Opinion survey, which showed some softness in current selling practice, is not without its brighter side. For the reaction to that survey shows an awareness of the need for value selling and a resolve to achieve that aim.

With the natural and human resources at our command, value buying, productivity, and value selling form a team that will maintain our national economy—employment, living standards, profits, and security—at a sound, high level.

Stuart F. Henritz

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Highlights

This issue's important features summarized for the busy reader



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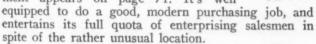
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What are the characteristics of the **Ideal** Supplier, and how can you evaluate your vendors to see how they measure up to the standards? On page 85 you will find a rating chart developed by the purchasing department of Motorola to answer these questions. The idea came out of a

sales conference and was put into reverse to apply a sound analytical procedure to purchasing uses. It substitutes considered collective judgment for individual general impressions. One of the important results is that it has improved vendor service by putting the finger on specific shortcomings in an otherwise excellent record.

Many industries are dependent on Foreign Sources for major raw material supplies—for example, carpet wool. There's industrial romance in such a situation, but also a lot of purchasing uncertainties and headaches, as told in the article on page 80. A significant feature is the way in which procurement problems have directed the course of industrial research. Witness the comparative charts of foreign wool prices and the trend toward greater rayon content in rug manufacture.

One of the most unusual Purchasing Offices to be found anywhere on the American industrial scene is anchored offshore and towed around to project sites as occasion may require. A picture story describing this unique seagoing purchasing department appears on page 71. It's well



The dominant importance of Purchasing Expenditures in the over-all operations of modern industry and business is strongly emphasized in a current business study made by a leading financial organization, which has analyzed the operating reports of America's 100 largest corporations. This completely objective, unbiased tabulation reaffirms what students of purchasing have long been striving to impress upon management—that the expenditures for which the purchasing department is responsible are not only the largest single factor in the distribution of the sales dollar, but usually outweigh all other factors combined. You will be interested

in the figures on page 112, and so will your management.

This month's Guest Editorial (page 69) is contributed by George R. Bosworth, N.A.P.A. Vice President for District No. 7, and Purchasing Agent for the City of New Orleans. Mr. Bosworth points out the common problems and principles of purchasing for industry and for government—a field which presents one of the greatest opportunities for businesslike administration of governmental activities and service to the taxpayer.

Die Casting is widely recognized today as one of the most useful production processes available to the designer and purchasing officer today. To use it most effectively and intelligently requires a knowledge of the process, its capabilities, advantages and limitations, and close



cooperation between engineering, manufacturing and purchasing departments at every stage from the original drawings to the ordering and specifying of parts. The article on page 87, reporting on one company's experience in extensive use of die cast parts, appropriately presents both the engineering and purchasing viewpoints and the system that has been worked out to get the most in satisfaction, economy and value from this process.

Purchase Specifications are the key control device for assuring that buyer and supplier have a clear and consistent understanding of what is wanted, and that the buyer will receive materials and products of quality and characteristics and performance to fill his need. To develop better specifications should be the constant concern of every purchasing man. Some proven techniques for achieving that aim are described on page 109.

Are you making full use of these monthly departmental features compiled especially for the purchasing agent? The Washington Previews (page 13) keep you informed on current developments in governmental policy. Another section is devoted to Office Equipment and Forms (page 173). Informative Trade Bulletins and Catalogs listed on page 19 are yours for the asking. New Products and Ideas are also reported (page 126).

COMING—IN NEXT MONTH'S ISSUE

Get Ready for Annual Inventory — Hidden Cost Factors and How to Avoid Them Materials Handling Equipment — Traveling Requisitions — Purchasing Liaison

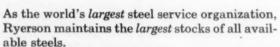
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BABBITT—Five types, also Ryertex plastic bearings

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HISTORIAL TIP

PURCHASING . . . Public and Private



By George R. Bosworth

GEORGE R. BOSWORTH is Director of Purchases for the City of New Orleans. He is currently serving as Vice President of the National Association of Purchasing Agents for District 7, embracing the southeastern states of Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, and Tennessee.

A native born Orleanian, Mr. Bosworth's career includes purchasing positions in both private industry and local government. He was connected with two of the larger steamship companies operating out of New Orleans, and later with a manufacturing firm, before accepting the call to public service in October 1946, to organize and direct a centralized purchasing system for the city.

His accomplishments in the municipal purchasing field have been notable from the start. Mayor Delesseps S. Morrison, in each of his annual reports since Mr. Bosworth's appointment, has singled out the Purchasing Department for particular commendation. The 1947 report, covering the first year's operation, commented: "Back door, wasteful purchasing has been eliminated, and a modern, open bid purchasing system inaugurated. Under George Bosworth, that change from what we had to a program based on efficiency and complete fairness to all has been a phenomenal improvement. The effect of central purchasing has meant approximately \$500,000 in savings to the City in the past 12 months."

This record is known and recognized far beyond the local scene, and the New Orleans Purchasing Department has frequently been cited and studied as an example and guide for efficient public buying.

Mr. Bosworth has been an active worker and leader in Association affairs. He is a past President of the New Orleans chapter, and for two years served as National Chairman of the Governmental Buyers Group, N.A.P.A. Educationally minded, and a graduate in business administration, he has for several years taught the purchasing course at Loyola University of the South, in New Orleans.

He is a family man, with four daughters and five grandchildren. His chief recreational hobby is baseball.

OW would you like to purchase for a large corporation that uses just about everything under the sun, and whose hundreds of thousands of stockholders are daily acquainted with your actions through the press and view your work with an eagle eye?

That, in effect, is the job held by every purchasing director of a major American city. It is a job that is indeed interesting and stimulating, and the occasional problems and harassments are more than offset by the great personal satisfactions that come to one who is working in the public interest of his entire community.

With the exception that your actions are subject to continuous public scrutiny—working "in a gold-fish bowl"—it seems to me that there is basically very little difference in handling purchasing for a large city and that of a big industrial organization, whose chairmen and directors demand sound and economical expenditure of funds.

In my city, and in others with which I am acquainted, the elected Council serves as a board of di-

DETROIT

CHASING

rectors. The Mayor or, in some cases, the City Manager, is the operating head of the corporation. They want the various department heads, among which purchasing is a key one, to do an effective and efficient job that will reflect credit on the administration.

An important development in recent years has been the recognition in local, state, and national governments that sound planning and execution of purchasing is an absolutely vital factor in good administration. The most recent example of this progress has been in the armed services of our national government, where standardization and the elimination of duplicating and overlapping purchasing has become the order of the day.

However, the ever growing public and private interest in wise purchasing practices is no reason for us to relax our efforts. Rather, it should serve as a spur. There is always the opportunity to improve methods or procedures. And keeping ourselves informed on present and future conditions, as reported and interpreted by the top economists and forecasters is a definite "must" in our field.

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It may seem a little trouble to set aside some portion of our spare time, in the evenings or on weekends, for the purpose of keeping ourselves posted. But don't we all waste some time during the week? Do you not agree that some of this time could be put to good use where it will benefit us by supplying the proper "know how" to do a better job and enable us, as individuals, to bring greater credit to the purchasing profession?

Surely we have available the appropriate and handy tools in the educational, standardization, and public relations programs of our Association.

In the public relations field, the purchasing executive has the responsibility for displaying leadership in promoting the proper feelings between his departmental personnel and himself—in achieving what, in Navy parlance, is known as "a happy ship".

Similarly, he has an interest in establishing and maintaining cordial and cooperative relationships with other key departments and department heads. We all benefit—most of all, the company or organization for which we work—when the purchasing executive makes a genuine and sincere effort to acquaint himself with the other fellow's problems and seeks to offer constructive

suggestions for the solution of such problems. We all know that when we sit down with the other operating departments and listen while they unfold their own knotty problems, of which we ourselves may have been entirely unaware, it gives us an inner feeling of personal satisfaction when we can present some small idea or suggestion that helps to solve or compromise the matter.

The same type of cordial relationship is important in effectuating good purchasing practices by enlisting the interest and cooperation of other departments. For example, to help us-and our employers- the standardization program furnishes an excellent opportunity to bring forward to top management constructive suggestions. When carried out-with resultant savings in time and cost-these practices of standardizing the requirements and purchases of many items of tools, supplies, equipment, and the like, reflects credit on the individual responsible for this saving and, in turn, on the purchasing profession in general.

We know that in a large organization, the minds of executives who direct the use of materials and equipment function along many lines. These men and women are not primarily concerned with purchasing, its problems and opportunities; they are mainly interested in the use of the item or equipment to do a specific job. We in purchasing have an educational task to carry out within our own organizations. It is up to us to sell those for whom we are buying on the idea of standardization and what it can mean for them and for the organization as a whole. With intelligent application to this problem, an impressive record of savings can be accomplished through bulk purchases, better availability, and simplified inventories.

Another integral area in the public relations field—the one that often comes first to mind in connection with purchasing—concerns the relationships between the purchasing division and its vendors. This, in my opinion, is an extremely important matter, for the reason that our performance depends largely on theirs, and we can obtain very important ideas and assistance from our vendors if we make sure to let them know that they are our friends, and likewise, that the purchasing division is a friend of theirs.

One of the quickest ways to have the boys on the other side of the fence feel that they are not wanted

is to keep them waiting unnecessarily in the outer office. Keep in mind that time is just as important to the salesman who is waiting as it is to us. An unnecessary delay can deprive him of the opportunity to produce business elsewhere. So don't be an inadvertent time-waster, either on your own or on the time that belongs to the other fellow. If you can't see a salesman immediately, explain that you are tied up and give him the choice of waiting, talking to someone else, or waiting till you are available.

Finally, a fourth area for good public relations—particularly important to the public buyer—is with the "public" itself. Nothing can do more to enhance the progress of our profession than the knowledge and confidence that the purchasing department is conscientious and competent in meeting the trust that is placed in us to handle expenditures wisely and fairly.

The educational program ties in with all of this. Certainly our early educational training is important in teaching us to think straight and in providing the background for handling business in an intelligent manner. Our professional education and training provides us with the specific information and techniques pertinent and essential to our particular role in the business world. And there is an amazing amount of

such information available to the man who will conscientiously take advantage of it.

How can we meet our responsibilities? To sum up, I offer you the philosophy of one who really lives in the Purchasing atmosphere: Be informed. Keep yourself abreast of new trends and practices. Apply them in your company. Think before you act. Be reasonable and cooperative. Achieve a two-way exchange of information among your associates in your own organization and with your vendors. Above all, try to have a sympathetic understanding of the other fellow's prob-

One final word, again from personal conviction and experience: Membership in your Association is basic, but it is not enough in itself. Attend its meetings and participate actively in its work—in the local group, at district conferences and national conventions. Remember that you benefit out of anything only in proportion as you put interest, time, and effort into it—and each of us can always learn something from the other fellow in our profession.

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A Water-Borne Purchasing Office

Purchasing and other offices just drop anchor and go to work when Merritt-Chapman & Scott begin another bridge building job. Here the "floating headquarters" barge is moored at Tarrytown, N. Y.



Receipt and withdrawal of supplies take on new aspects when the machine and supply shops are afloat. The derrick "Chinook" is making a seaborne pick-up of materials for the new bridge.



WHEN Merritt - Chapman & Scott, engineering contractors, go to work on a big bridge construction project, they literally sail into the job. In place of building and equipping extensive field offices and shops, M-C & S moves a complete "floating headquarters"—in the form of two converted U. S. Navy bomb carriers—directly to the scene.

Even as the barges are towed into place, key project personnel—managers, engineers, and purchasing men—are functioning smoothly in offices established on one vessel, and a fully equipped machine and supply shop is in full operation on the other.

On a typical M-C & S job—in this case building the major share of the pier foundations for a milelong bridge that will carry the New York State Thruway across the river at Tarrytown—the office barge carries complete facilities for project administration. Purchasing agent John McAllister, for example, is able to get in touch with sup-

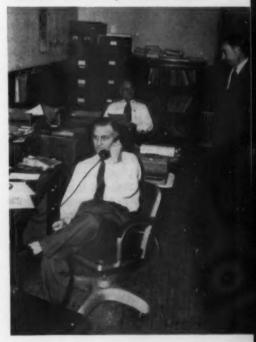
pliers anywhere through the office switchboard, which is hooked into the shoreside line. Complete records of all negotiations and transactions are aboard. A two-way ship-to-shore radio-telephone net permits Project Manager Burton F. Sanders to communicate easily and promptly with every key piece of floating equipment working on the heavily traveled waterway, in clear weather or foul.

Other conveniences include m two-bed hospital complete with X-ray machine, and supervised by a registered nurse; an automatic oil furnace; a set of 48-inch attic fans for use in hot weather; and all regular utility services. Visiting suppliers' representatives are welcomed into office quarters as good as any ashore—and perhaps more comfortable than most.

The work barge, moored nearby, is equally complete. It has everything from a carpentry shop to a precision lathe. Special fittings are fabricated in its blacksmith shop and forge.

pliers anywhere through the office switchboard, which is hooked into the shoreside line. Complete records of all negotiations and transactions

Contacts with suppliers pose no problems. PA John McAllister (foreground) confirms on order by 'phone, while James Carsano welcomes a vendor's representative aboard.



OCTOBER, 1953

Material Control Keeps TV Production Rolling

By Charles J. Hulse

MILL PATH WALL LINE

N THE zooming growth of the television industry over the past few years, no single factor has been more spectacular than the growth of Sarkes Tarzian, Inc., manufacturers of television tuners and operators of Station WTTS at Bloomington, Indiana, one of the nation's outstanding broadcast and telecast outlets.

From one small room, the concern has grown to include four factories and several warehouse units. Add to this the radio and television station, and the company's net capital worth today is in the neighborhood of \$3 million, with annual sales of around \$10 million. Put it another way: In 1948, when Sarkes Tarzian was just getting started, total national television tuner production amounted to a little over 2 million annually. Now this company is making about 11/2 million tuners annually, over 20% of the expanded total national production of 7 million. It is the largest producer of switch type tuners in the country.

This tremendous, almost feverish, rate of growth was not without its headaches. One of the most serious of these was the problem of inventories. In an industry like television tuner production, the number of small parts involved is astro-



Jennings Polley, in charge of material control at Sarkes Tarzian, Inc., with three of his key assistants: Phillip Massy, Danath Christy, and William McNamara.

nomical; at least 225 separate parts go into each tuner. Model changes, technical improvements, and changes in production methods are constantly encountered. The proper flow of supplies to manufacturing lines and large amounts of capital tied up in inventories to support

expanding production were big problems in themselves, complicated by the vital hazards of engineering changes and obsolescence. As recently—or as early—as 1950, the company found itself in a position where some 25% of its inventory was inactive, and inventory losses

PART NUMBER	DATE	REQUISITION	PUR. ORDER NUMBER	QUANTITY	DATE	RECEIVED	TOTAL BALANCE	DATE	STORES INSPECTED	
ESCRIPTION										
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MAXIMUM			to the prede	termined Ma	ximum am	ount,				
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NUMBER PER UNIT			balance with	requirement	5.					
					-	1				
										- 17

from obsolescence were high.

To meet these difficulties, it was decided to implement the supply program with a special Material Control Department, and Jennings Polley was assigned to the job. It started out as a one man project, but as the program developed and additional responsibilities were taken over, including the actual stores operation, the department grew to the point where Mr. Polley now has the help of some 50 workers.

The results have been notable. Today there is no "inactive" inventory. Storage space is now utilized at maximum capacity and efficiency. Accurate current records and controls are in effect, and annual losses from inventory stocks have been reduced by close to 5%, representing many thousands of dollars annually in savings. A smooth flow of materials is maintained to the four separate manufacturing locations in the city, and order delays caused by supply shortages for production have been substantially reduced.

And all this has been accomplished in a period when the company was expanding its output 15-fold in the short space of three years. Further, the material control system has been installed in a way to enable the company to continue rapid expansion without interference from supply difficulties.

Material Control is completely separated from Purchasing, but the two functions supplement each other most effectively. One obvious result is that considerable pressure on the purchasing department has been relieved, and the buying staff is now able to concentrate on setting up procurement channels for the new, special, and specific items that are characteristic of and vital to the supply requirements of this industry, and the promptness and efficiency with which these requirements can be dealt with, as soon as engineering changes are in effect or new tuner orders are received, has been substantially improved.

Mr. Polley describes the ways these improvements were brought

about in a fashion that makes the whole thing sound simple. But first, let's take a look at the problems involved, as he did when he first took over the job.

For every single tuner made, a minimum of 225 parts are involved; on some models, the number is considerably higher. Some of these parts are peculiar to one particular model; others are common to all models manufactured. Rates of usage vary, and are not always accurately predictable. Thus, a certain flexibility or fluidity must be maintained to keep abreast of changes, improvements, and markets in this fast moving industry. Some of the buying was done on a one-week basis, while on other parts a supply for eight weeks or more was anticipated. Neither policy was wholly satisfactory. Put them together and you have no definite policy.

It's quite a trick to avoid overstocking or understocking under these circumstances, when ordering the multiplicity of parts, and the penalties for error are heavy in

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either case. Liberal stocking of all parts for producing all possible models results in exorbitant costs in terms of tied-up capital and costs of storage, and past experience shows that thousands of parts have been rendered outmoded by changes in the design of a particular model, entailing obsolescence losses amounting to hundreds of thousands of dollars.

At other times, large orders for tuners caused a critical demand for parts that had not been used for months. Production delays result, and these are costly too. Almost complete assembly of the tuners may be possible, but still delivery is delayed for lack of sufficient quantities of one specific part. On an order such as this, delays may amount to precious days or even weeks, and this can cause a television manufacturer's "jump" on his competitors with a new model to be lost-which is a serious matter in such a highly competitive industry. Even the most intensive purchasing effort cannot correct situations like this, where time is so important.

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HISTOR OF THE THE

One of Mr. Polley's first steps, upon assuming his new post in 1950 was to ascertain what parts were common to all of the tuner models produced. It took a lot of investigation to get his figures accurate, not only because of the number of parts and models involved, but because many of the parts were closely similar yet differing slightly in dimensions and tolerances so that they constituted separate items.

A second step was to identify every item used in assembling the tuners by catalog number. This was the means of effecting positive stock control. Further, it was the means of tracing and reducing inventory losses and insuring that stocks are 100% active.

Next, after careful study of past purchasing activities and production usage, stock quantities and safety margins were revised and a minimum-maximum formula for the ordering of common parts was established to help assure a steady flow of supplies by ordering on time and maintaining adequate reserves. A uniform schedule was adopted to meet quotas for a six-week period in advance. At the same time, close liaison is maintained with the factory production heads to obtain accurate current estimates of supply amounts needed.

Once this basis of factual information was compiled, Mr. Polley's



The radio tower of WTTS, one of Bloomington's landmarks, is a part of the \$3 million Sarkes Tarzian organization, which includes four separate manufacturing centers in the city and additional warehouse facilities.

department gradually assumed the responsibility for ordering these stock items of common parts. When the ordering point is reached, and minimum quantities of parts are on hand, requisitions are sent to Purchasing for the quantities needed to restore stocks to the maximum figure. Purchasing sends a purchase order receipt to Material Control and immediately places the order with its established supply sources. Material Control records the quantity on order and adds it to the total balance figure for that item as parts are received, inspected, and put into the stores. All of this information appears on a simple control sheet for each item, showing the exact state of the inventory at any given date, as well as avoiding duplication in ordering.

Material control at Sarkes Tarzian does not concern itself with items other than those which are common to several different models and are stocked for that purpose. Experience has shown that the fewer people involved in the handling of specific parts for a particular application, the better. Thus the responsibility for procuring and supplying such items remains wholly with the Purchasing Department as manufacturing orders are received and requirements arise. But by placing the common items on a well organized routine basis, once the proper sources have been established

by Purchasing, individual buyers in the Purchasing Department are assigned the task of procuring the specific parts as required for individual orders, and can concentrate on this phase. This too contributes to effective over-all material control, since quantities required can be accurately determined and there is little risk of obsolescence loss, whereas on the items of common use, the combination of requirements makes possible more economical buying and reduces the necessity of large stocks on any one item, and if design changes occur the parts can always be assigned to use on some other model and the maximum-minimum limits adjusted.

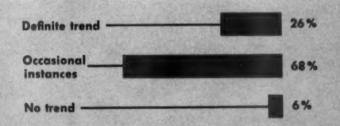
Jules Sonneborn, who heads the tuner production division and was instrumental in establishing the present supply arrangement, has this to say: "No business can function successfully without a production and material control system and a smart purchasing set-up." At Sarkes Tarzian these departments operate as a well coordinated team, each carrying out its particular part of the supply responsibility. Together they have contributed in no small measure to smooth and profitable company operation and the avoidance of "growing pains" in a record of tremendous expansion that could otherwise have been seriously beset and hampered by the difficulties of supply.

PURCHASING reports on a

How Does INDUSTRIAL DIVERSIFICATION Affect Purchasing?

Diversification of product lines by manufacturing companies is on the increase. Some instances — such as the acquisition of a soap producer by a metalworking firm — are interesting. Others — like the entrance of a well-known steel company into the plastic pipe business — are highly significant. In any event, industrial purchasing men have more than a passing interest in such developments, since they may affect the number and quality of available supply sources. Diversification within a P.A.'s own company could also force, a change in his own operations.

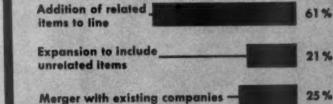
Have you noticed any trend among your suppliers, or potential suppliers, toward greater diversification of product lines



PURCHASING

OPINION

2 From your observation, what appears to be the chief method of achieving this diversification'



Percentage factors total more than 100 because some respondents checked more than one answer



3 Does diversification, or merger, tend to increase or decrease the number of supply sources available to you

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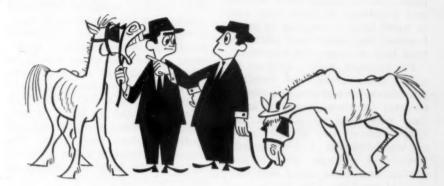
58 %

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The Scope of Trading



By Leonard R. Watkins

HOEVER coined the phrase "Let the buyer beware!" knew human nature. That admonition is as old as business itself. Perhaps in some Utopia the beings who trade one with another may be able to take it entirely for granted that things are always what they seem. With all due respect to the fine achievements humanity has accomplished in higher standards of conduct, ethical relationships, and just plain honesty, the fact remains that seller and buyer meet with definite mental reservations on both sides about what they are going to give and get.

If this were not true, there would be possible a tremendous reduction in the millions spent each year on sales organizations and purchasing departments. Salesmen simply would be order takers, and buyers would be order clerks. As it is, salesmen and buyers must first of all be good traders.

Assuming the desire to cultivate and maintain good continuing relationships beween selling and buying companies, this does not mean that either deliberately tries to take unfair advantage of the other. There must be real value given and fair payment made. But the buyer must beware of all factors affecting the real value of a product offered, and the salesman must beware of all factors affecting the money realized for the product.

To elaborate on the broad qualifications of the professional buyer, what specifically is required of a purchasing agent in order to be a good trader?

Judging Character

1. He must be a good judge of human nature. Only long social and business contacts with many different kinds of people can provide the elements necessary for making sound character judgment. The purchasing agent must acquire a thoroughly objective attitude toward all the many different kinds of people he meets on the job. He must learn to subordinate his own personal likes and dislikes, and get at beneficial factual contributions beneath superficial personalities. Only demonstrated lack of the former justifies permitting the latter to affect his considered judgment.

In no case should the purchasing

agent permit a salesman to leave with the sense of having been made a fool of, or unfairly rebuffed, or actually insulted. The buyer's judgment of human nature should make friends for himself and for his company. Many a valuable connection has been ruined, and many a useful new product has been lost to a company, because some purchasing agent or buyer rode roughshod over an inexperienced or somewhat tactless sales representative.

The Open Mind

2. He must always be willing to learn, and be receptive to new ideas. No matter how expert a purchasing agent may become in the elements of, and factors affecting the products he buys, he must never forget that he is neither their creator, manufacturer, or distributor. The people who devote their time and money and brains to those functions live with their products every day of their lives. They simply have to know more about them than is possible to any purchasing agent, banker, lawyer, or other general professional man.

The purchasing agent must know everything about what, where, when and how products are needed to do their proper job in his company. But let him take care before trying to tell his suppliers how to do their job. His approach, and his responsibility, should be to intelligently bring together the need and its fulfillment, and in this process to get

SUMMARY: Purchasing has come a long way from the era when every transaction was a "horse trade". But with all of the progress toward developing a real science of buying, the principle of personal negotiation is still fundamental, and this sort of trading skill is one of the basic qualifications of the successful buyer. Four factors are emphasized in this article: knowledge of human nature, an open mind, sense of ultimate values, and defining the terms of sale.

every possible suggestion from suppliers on why their products are as they are and how they can do a new or better job for his company.

Sense of Values

3. He must be quick to understand and apply figures to each related factor and to the sum totals of all factors involved in a given transaction. As he studies each proposal and quotation, he must ever bear in mind how a variation in specifications and usage may affect the total bids of respective suppliers.

For example, take a contract for poles, cross arms, and insulator pins. At the time of placing a general contract for these items, his company may need six different pole sizes-made of two or more kinds of wood-treated and untreated; three sizes of cross arms in two grades; and three types and four sizes of insulator pins. He has included in his requests for quotations the best obtainable estimates of quantities required of each of these variables, and delivery destinations. Each separate item calls for an individual price, from which are summarized comparative total bids for the whole contract.

Bidder A may have items (b), (g), and (h) priced substantially lower than his competitors. Bidder B may be low for items (a), (c), and (k). Bidder C shows very attractive figures for items (d), (e), and (f). In total, the bids are relatively close, with B the low bidder, A next, and then C. But in requesting the quotation, the buyer may have pointed out that his Engineering Department is considering some construction specification changes which may be made effective during the period of this contract, which would greatly reduce the actual quantities ordered of items (a) and (k), where B shows to best advantage, and could greatly increase the usage of items (b), (e), and (h). Evaluated on this basis, it developes that Bidder A would actually be the more favorable source of supply on his total bid, than B.

The experienced buyer learns to be immediately suspicious when an established supplier, familiar with the requirements of his company, quotes very low on certain contract items while appreciably raising others. Aside from changes in manufacturing quantities, machinery, production methods, and transportation costs to points of use, which may perfectly logically lead to this result in some instances, it fre-

quently happens that such a supplier has certain field knowledge, unknown to the buyer, that he is not likely to get many specific orders for the low price items, but will be getting more orders for the more expensive ones. If this eventuates, an apparent low bidder may quickly become an actual high bidder, or vice versa.

The good trading buyer must learn not to be satisfied to merely add, subtract, multiply, and divide figures, but to equate and think through the possible alternative weightings of those figures in arriving at the total actual money his company will pay for a product.

4. He must know the principles of contract law. Whether a purchase be consummated by letter or contract, it involves many terms and conditions other than price. The proper statement of these is essential to fairly fulfill the intent of seller and buyer.

They must conform to the legal requirements of valid contracts. The purchasing agent should be sufficiently versed in such requirements to personally pass upon the great majority of them. If a particularly involved set of circumstances requires an unusual or special clause, the purchasing agent should consult his Legal Department or a competent lawyer before writing or accepting such a clause. Some of the more general of these terms and conditions are:

- Times of commencement and termination of the purchase agreement.
- b. Cancellation provisions, if any.
 c. Statement of specifications, including quality guarantees or war-
- ranties.
 d. Inspection or quality check of delivered materials.

- e. Delivery requirements.
- f. Trade, quantity, and cash discounts; rebates or allowances.
- g. Transportation charges.
- h. Effect on price of changes or variations in specification, quantity, or delivery.
- i. Wage and material "escalator" or other price adjustment clauses.
 - j. Terms of payment.
- k. Interpretation and arbitration, if any.
- l. Conformity with applicable governmental regulations.
- m. Protection against patent infringement.
- n. Application of Federal and State sales, excise, social security or other taxes.

Within the framework of such purchase provisions, a good trading purchasing agent frequently can obtain benefits for his company just as important as outright price reductions in determining ultimate cost. And he must definitely recognize that certain of these factors are fundamental considerations in establishing and comparing quoted prices, which must be duly weighed in making final decisions on the award of business.

Thus good trading involves give and take, live and let live, letting the other fellow make a dollar, getting and giving best actual value for money expended, knowing the rights and privileges that legitimately accrue to both parties in sound commercial practice, creating good will and mutual confidence and mutual benefit between organizations to maintain sound, continuing business relations.

In such performance is most directly demonstrated the difference between the casual, side line, or amateur buyer and the truly professional purchasing agent.



"Who's the smart Alec that filled our order for washers? We meant a dozen washing machines!"

Quick calculator for rail shipping costs

By Louis J. Murphy, M.E.

ERE'S a quick way of calculating delivered cost of machinery. Where you must pay the rail shipping cost on industrial equipment, as is usually the case, this transportation must be added to equipment cost to determine the total price you pay for the unit. While shipping costs can be calculated from railroad rate publications, the process is often tedious and not worth the time when all you need is a quick cost estimate for a load of a certain weight.

This chart enables you to obtain rail shipping cost in a matter of seconds. It doesn't give results down to the last penny, or as accurately as a slide rule, because such extreme accuracy is seldom required

in practical usage.

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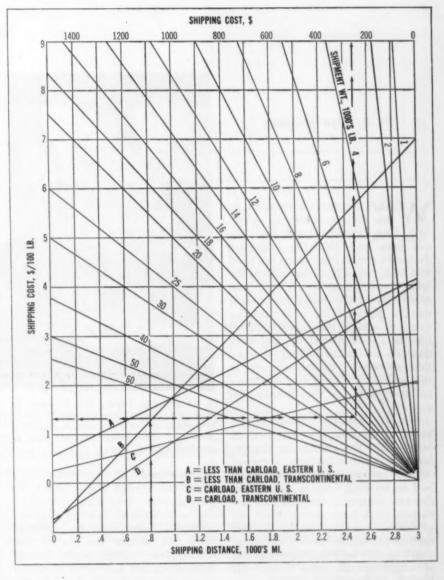
Since shipping cost is a function of load weight and distance the load is transported, you must know both these factors. Load weight is usually given on the manufacturer's circular or catalog; air-line distance between shipping and receiving point can be determined from any ordinary map scale.

Let's solve a typical problem using the chart.

Example: What is the approximate shipping cost for a machine weighing 20,000 lbs. when crated, if shipping distance is 800 miles, and transcontinental lcl. rates apply?

Solution: Enter the bottom of the chart at the shipping distance of 800 miles, and project vertically upward to the lcl. transcontinental line (B). From the intersection, project horizontally to the right until the 20,000-lb. shipment-weight line. Then project vertically upward to find the shipping cost as \$258. (By projecting to the left at the second stage, the unit shipping cost can be found. For this example it is \$1.29 per 100 lbs.)

If you have another quotation from a machinery manufacturer 1,200 miles distant, enter the chart



at 1.2 and proceed as before. You will find shipping cost is \$460. In other words, transportation from the second source would cost you approximately \$202 additional.

This chart is based on the secondclass rail rates for machinery. These apply in shipping almost every type of industrial unit purchased today. Obviously, for purchases on which other commodity rate classifications apply, a different chart would have to be drawn. Try this calculator on a few of your everyday problems. You'll find its results are quite satisfactory.

Coping with the Problems of Foreign-Controlled Supply Sources

By A. Wyn Williams

WHEN the purchasing agent, in his travels, checks in at any first class American hotel, the odds are very high that the luxurious Jacquard carpet into which his tired feet sink restfully as he crosses the lobby on his way to register, was made by Bigelow-Sanford. And equally high are the odds that the room to which the bellboy shows him is also carpeted by Bigelow-Sanford, in either velvet or Axminster weave. For the company is this country's biggest carpet manufacturer-and, for that matter, the world's.

But little does the average person know of the complicated problems with which the purchasing department at Bigelow-Sanford, or indeed at any carpet company, may have had to contend with in assembling the raw materials out of which the carpets have been woven. They are problems brought about by the fact that carpet wools—until a couple of years ago the only raw materials out of which carpets were woven—all have to be purchased abroad.

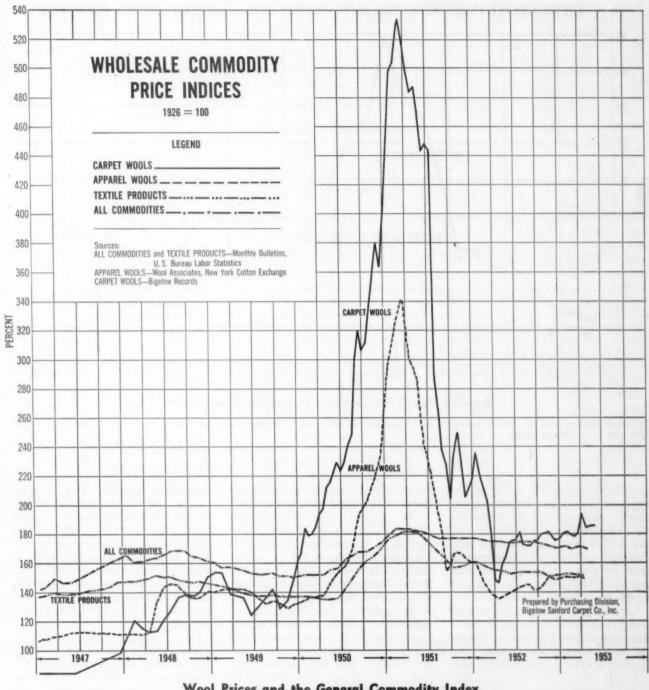
Foreign Sources

The wool from the United States sheep population is all apparel wool. The very qualities of softness and fineness which make for desirable apparel make apparel wool unsuitable for carpet fiber, which must be 9 * DARMAN MALL MAN SALA AND A AND AND AND A AND

F. Albert Hayes (right), Vice President for Purchasing, Bigelow-Sanford Carpet Company, New York, confers frequently with his staff on world conditions as they affect the price and availability of raw materials. In discussion wth him are: Miss Alma Radford, commodity analyst; J. Paul Bentz, assistant wool purchasing agent; and Donald C. Higley, wool purchasing agent.

characterized by resiliency and brashness. United States sheep, in general, are over-elite. Therefore the raw material feeding Biglow-Sanford's looms must be pipelined from the distant corners of the world, from areas where coarse wool sheep are permitted to thrive or are the only ones that can live in the natural surroundings. It comes from the highlands of Scotland, the wild hills of Wales, the rough pastures of Afghanistan, India, and Iran, from "down under" in New Zealand, and from the craggy heights of Tibet, almost at the top of the world.

That is why the Bigelow-Sanford Company has to contend with the most diverse and complex supply situations, ones totally foreign to the purchasing department that is ordinarily concerned with supplies available in a domestic market. It explains why Bigelow-Sanford, in administering its purchasing activities under the direction of Vice President F. Albert Hayes, has set up a special buying group within the purchasing division to deal with the complexities of wool procurement imposed by global conditions. These are conditions which change rapidly and frequently, for reasons



Wool Prices and the General Commodity Index

The violent price fluctuations in carpet wool pose a major problem for the buyer responsible for this commodity. They are the result of many complex factors outside the normal realm of general economic trends and supply-demand relationships.

seemingly obscure but which, if overlooked or unpredicted, are reflected in added costs of basic materials and consequent weakening of competitive position.

While the carpet industry is an extreme example of one which has to resort to global buying because of its dependence on foreign sources of raw materials, the techniques of foreign buying and its problems are of increasing interest to other American industries. For the lessons to be learned are becoming of wider

application as certain of our native resources are being depleted and more reliance must be placed on foreign sources of supply.

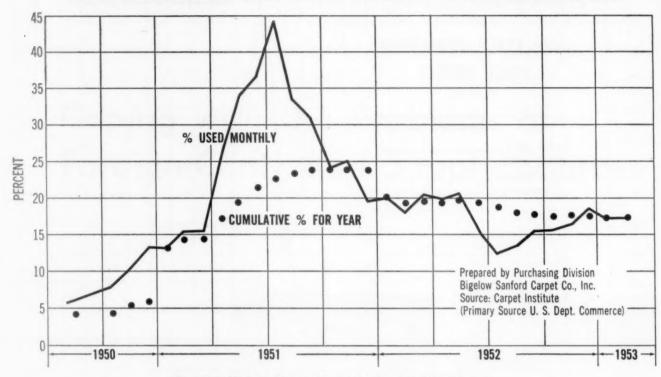
Unpredictable Markets

What are some of the problems that have confronted the carpet industry in the past few years because of this global buying? For one, in a brief 15-month period from January 1950 to March 1951, Mr. Hayes witnessed the price of carpet wool stratosphering by some 400% (a

price, incidentally, even 700% above the immediate postwar figure) and saw them drop even more precipitately in the next 12 months.

But a price extravaganza is not the only problem presented by the global nature of such purchasing operations. The buyer has to contend with the vagaries of world politics, which may affect his raw material sources in a variety of ways, from hopelessly scrambling any system of quality control all the way to peremtorily cutting off his

ENTIRE CARPET INDUSTRY RAYON INPUT AS PER CENT OF TOTAL SURFACE FIBER INPUT



Growing Use of Rayon Yarns in Carpet Manufacture

Technical research and purchasing ingenuity have combined to solve supply problems and emancipate an industry that was formerly "shackled to a Chinese sheep".

sources altogether. Or, world politics can make a once reliable supply source uncertain in its shipments and unpredictable in its commitments. Yet the looms must be kept weaving, and the sales department must be given carpets to sell that are not priced beyond the reach of a popular mass-income market.

Let us cite a few examples of how world politics can confound the purchasing policies of an industry buying its raw materials abroad. Take the case of China. That country used to supply 25% of all carpet wool imported into this country. It was a particularly good type of carpet wool. When, in 1937, Japan launched its war on Chiang Kai-shek, this valuable source of carpet raw material began drying up and was, of course, completely cut off during World War II.

When the war ended, Chinese carpet wool began to be available again, and by 1950 it seemed that this once excellent source could once more be relied upon. Then China passed under Red control, and with the outbreak of the Korean war Chinese wool disappeared from the market overnight. To make matters worse, Tibet also came under Red domination, and that country,

which also has an excellent type of carpet wool, dried up as a source.

The way world politics can scramble a system of reliable quality control of foreign raw materials is illustrated by happenings in India. When India was dominated by the British. Indian wool used to be sent to Liverpool, England, for auction, or to dealers in the United States. American carpet manufacturers could buy with confidence from either source. The wool was properly graded, and they knew what they were buying. The mark of a seller meant something, and the quality it represented was a cherished asset to be maintained for the benefit of both buyer and seller.

Changed Marketing

When the British left India in 1947 and the country was divided into two parts, India and Pakistan, the old system of orderly disposal of Indian wool through Liverpool auction was further complicated. War, greed, and nationalism brought about great changes in the former methods of distribution. Nationalist pride dictated that the wool should be sold by the Indian shipper. Out the window, immediately, went grading standards, either because

the native merchant was ignorant of how to apply them, or deliberately wanted to make a "fast buck" by shipping wool below specifications. Oriental trading tactics, long discarded in favor of western commercial practices, again became the order of the day. Brand names became meaningless, and legitimate claims by buyers were ignored.

The Argentine is an illustration of how foreign politics can interfere with orderly shipments and sound commitments in the case of foreign purchases. When Argentina found that carpet manufacturers were having to rely more and more on B.A. 5/6's and Cordova wool, it boosted the price and set a floor under it. The floor was really an elevator—that went up fast, skipping a lot of floors. The buyer could not be sure that his order would be shipped, even after a supposedly firm transaction had been concluded.

Argentine politics complicate matters further because the Peron government, in its endeavor to secure for itself the utmost revenue from the export trade, sets a deflated value for the peso in selling the wool abroad, and an inflated value when paying the sheep farmer. The latter has periodic fits of dissatisfaction with the price he gets for his wool from the government, and will unpredictably withhold it from the market and dry up the supply. Then the Government itself interferes with orderly shipment by periodically refusing to grant an export license for a consignment on which a firm commitment to sell and ship had been agreed upon by the American buyer and the Argentine seller.

Study World Conditions

It is proper to ask how the purchasing agent confronted with these and similar problems of foreign buying protects the trading interests of his firm. From the policy followed by Bigelow-Sanford's purchasing department, the answer seems to lie in two cardinal principles of all sound procurement programs:

(1) to study thoroughly all that can be known about current and alternative sources of supply, whether existing or only potential, and the prevailing trends in each;

(2) to cultivate and maintain the closest possible contact with suppliers of proven reliability.

In this manner, while the impact of adverse foreign factors, inherent to buying on a global scale, cannot always be fully avoided, the reasons for them can be assessed and their injurious effects can be minimized.

To secure the fullest knowledge about supply sources, the purchasing department has to keep itself informed on "what's cooking" in world markets. This is done both indirectly and directly—or at second hand and first hand, by personal observation. The indirect assessment

of world market conditions comes from studying the daily press, technical and trade publications, government reports, and especially reports from correspondents in all parts of the world with whom members of the purchasing department have established personal contact.

Personal Observation Important

This constant watch on world conditions is essential in foreign purchasing because political changes can vitally affect an important market. A purchasing agent buying abroad must be able to evaluate and project the effect of a change in the political atmosphere upon his markets and buying policies. He should be able to gauge, for example, whether a lessening of tension in the cold war is likely to open up Red sources of supply in presently closed markets such as China, Tibet, or Russia itself, or whether other outlets, developed while these markets were closed to us, have permanently diverted supplies to other channels. He must judge whether the growth of industrialization in new nations, like India, will absorb raw materials heretofore exported, and whether it will mean that ever dwindling supplies will add to an already difficult trading situation, Thus the purchasing agent buying abroad must be a close student of world affairs.

Further, the study of world market conditions from the reports of others must be supplemented by personal, on-the-spot observation by the purchasing agent himself or a reliable assistant. Buying on a

global scale means traveling on a global scale. Either Mr. Hayes himself or one of his key assistants is constantly visiting wool markets in the four corners of the globe. It was the fact that Mr. Hayes was on a world tour in 1950, attending wool auctions abroad, that enabled him to get a correct perspective on the stratosphering prices of that year and to set buying policies accordingly.

While there was a sudden worldwide buying demand to afford some foundation for firming prices on wool, the main impulse to the fantastic rise could only be discovered by personal observation of what was happening at the auctions where the zooming prices were recorded. Before every auction in 1950, rumors would be spread that the United States was going to stockpile some fantastic quantity of raw wool; the figure of 300 million pounds was not infrequently mentioned. The rumors were never contradicted, and it was easy to see that they accelerated the inflationary spiral. Actually, we stockpiled only a few million pounds, and prices eventually fell to where they started from, and even lower. Personal observation of what fed the high prices made possible an assessment of their cause and course.

The Traveling Buyer

Similarly, Mr. Hayes, by a personal visit to the Argentine in 1948 was able to get invaluable information concerning availability and price of carpet wools from that area, and to build good relations with the packers of wool from that increasingly important source. It would

The global character of supply sources for carpet wool is dramatically illustrated by this secene at the Bigelow-Sanford plant in Amsterdam, N. Y., where test borings are being made on bales originating in India, Argentina, New Zealand, Syria, and Ireland.

Quality control is important in the manufacture of fine carpets. Here the wool is being tested for grease content. Carpet wool is purchased according to agreed specifications, but recent political developments have seriously reduced the reliability of such standards.







Fine carpeting is traditionally associated wth gracious living standards. Back of the finished product is an absorbing story of material procurement that reaches into the distant corners of the world.



The wool fleece as it comes into the carpet manufacturing plant represents unremitting search and world-wide travel by the purchasing man, supplemented by intensive study of world affairs to assure a dependable supply of adequate quality and reasonable product price.

have been impossible to have as adequately assessed the Buenos Aires market if the purchasing department had relied only on the indirect reports furnished by others.

Research Develops Alternates

Such personal study is a very intensive and thoroughgoing process. In a visit of several weeks duration. every minute of available time from 8 in the morning till 12 or 1 o'clock at night was scheduled and crammed with activities, visiting barracas during the day and other business conferences at the hotel extending far into the evening. Prior arrangements had been made for Mr. Hayes to visit some 31 wool houses, all of which he contacted. In addition, a number of companies in other types of business were interviewed to secure a broader picture of conditions as a whole. Branches of American banks in Buenos Aires as well as the U.S. commercial attache were also consulted to get complete coverage. Such trips were repeated in 1949 and in 1953.

What about alternative sources? The part played by the purchasing department in helping Bigelow-Sanford, two years ago, to break the strangle-hold of foreign wool on the carpet raw material supply, is instructive.

The price spree of 1950 was only one of many in which carpet manufacturers have been squeezed over the years because of their dependence on foreign sources. The company's product development department had been experimenting since 1937 with man-made fibers. During the war, some rayon went into car-

pet making due to the shortage of wool. It did not prove a success, because the housewife complained that carpets made with rayon soiled easily.

When the squeeze in carpet wool prices came in 1950, the research department had found the answer to the unsatisfactory wartime carpets, in which rayon was blended to supplement wool in short supply. Apparel rayon then used, like apparel wool, is too fine. Furthermore. under the miscroscope, its cross section is shown to be corrugated around the periphery. These corrugations act as dust traps, and the complaints that rayon carpets soiled was justifiable. Bigelow-Sanford research developed specifications for carpet rayon fibers capable of producing carpets equal to or superior to all-wool carpets. The fiber must be rounded, not corrugated in surface, and yarn must be delustered.

Breaking Market Shackles

But the fruits of technical research would not have broken the strategic hold of foreign carpet wools without the aid of the purchasing department, for domestic rayon manufacturers were unwilling to convert their plants to turn out yarn to the new specifications. So, abroad on their travels went representatives of the purchasing department to find foreign rayon plants willing to produce the carpet rayon. Such plants were found in Germany and Italy. For the first time, the strangle-hold of foreign carpet wool on the industry had been broken, and an alternative source of raw material had been found.

A comparison of the two charts herewith shows the relationship between the price of foreign carpet wool and the increasing use of rayon by the carpet industry. As wool prices went up, so did the use of rayon. Carpet wool is now being manufactured in this country; Bigelow-Sanford, through its wholly owned subsidiary, Hartford Rayon Company, will produce its own rayon fiber, especially designed for use in the pile of carpets. So, never again will the American housewife be subjected to having the price of an important item in her house furnishings completely at the mercy of the markets in raw materials bought abroad.

But though wool will never again have a dictating monopoly in fixing the price of carpets, there will always be use for it in carpet making and the source of carpet wool will always be countries abroad. The purchasing departments of American carpet manufacturers therefore, continue to do their buying on a global scale, and they will have to continue their role as expert students of world affairs. But, as Mr. Hayes pointed out in an address before the National Industrial Conference Board, the purchasing departments will henceforth be emancipated ones. Said he:

"We can and will use all of the carpet wool the world will produce, but we cannot again allow ourselves to be shackled to a sheep."

The principle implied in this aphorism can be taken to heart by all purchasers, particularly by the purchasers of supplies originating abroad.

Evaluating your suppliers

By William J. Arnos

Director of Purchasing, Consumer Goods Division, Motorola Inc., Chicago, III.

T a recent meeting of Motorola distributor salesmen, a dealer evaluation was made. One of our purchasing agents got wind of the meeting and attended it. He took away from that discussion much more than his salesmen associates dreamed he would.

When they spoke of planning their calls, rehearsing their presentations, and making deliveries and follow-ups, he listened with a buyer's ears and mentally translated the process in terms of buying factors. If the salesman can use an objective means of rating his dealers and prospective customers, for better selling, he reasoned, why can't the purchasing department do likewise from the buying angle, for better purchasing?

This was the beginning of an idea that has been developed into an unusual and effective purchasing tool

The ideal supplier was the basis on which the evaluation was to be made. The criteria had to be sufficiently universal so that any purchasing man could apply them to his suppliers. The final summary had to include a voice from the expediter, the junior buyer, and the senior buyer, because they are all involved in any purchase order.

Thus, as the procedure is presently set up, the expediter evaluates the supplier, the junior buyer who places the order adds his comments, and finally the senior buyer reviews the evaluations made by the people in direct contact with the supplier. He makes the final analysis.

Once each quarter, the senior buyer and the supplier sit down and go over the chart.

Some of the points covered in the chart, on which a supplier is rated, include how he:

Supplier Plant	Plant					Date							
		Always Usually Seldom Neve											
The above supplier:		6	5	4	3	2	1	0					
Delivers per schedule													
Keeps promises													
Maintains Good Records													
Has good quality													
Delivers per routing instructions				-									
Returns phone calls		1											
Advises us of trouble													
Delivers at quoted prices (without continual compla	int)			1			L						
Solves own raw material problems		L											
Helps in emergencies													
Delivers without follow-up													
(Does not request pic Has adequate delivery service (including off-hours)													
Supplies answers readily													
Is available when we phone													
Free of labor problems													
Closes order quantities accurately If bad, indicate over or under shipment		T	T	T	T								
		T	+	+	+	1	+	1					
Completes orders in sequence		+	+	+	+	+	+	+					
Completes ROs		+	+	+	-	-	-	-					
Has good packaging		1	1	1	1	1	1	1					
Operates without special favors (not a nuisance)		1	1	1	-	1	1	-					
Invoices correctly		+	+	+	+	+	+	+					
TOTAL POINTS	_	+	+	+	+	+	+	-					

Motorola's Supplier Evaluation Chart tabulates ideal vendor characteristics

- ...delivers per schedule;
- ... maintains good records;
- ...delivers per routing instructions;
- ... returns phone calls;
- ...delivers at quoted prices (without continual complaint);
- ...solves his own raw material problems;
- ... delivers without follow-up.

All of these and the other items in the rating check list are specific, everyday characteristics that can be readily and fairly appraised from experience. There is a minimum of latitude for personal opinion or prejudice to enter the picture. To make it still easier, and more accurate, the rating is done on a scale of seven degrees—ranging from "Always", through "Usually" or "Seldom", to "Never". The numerical equivalents of each rating automatically follow, and they add up to a total rating in which 126 points represents the perfect score for an ideal supplier.

Equally as important as the total or composite rating is the fact that the chart graphically shows the points of excellence or of short-comings, providing a practicable and specific basis upon which improvement can be sought.

While in conference with the vendor, in addition to discussing the chart, the senior buyer asks the supplier for constructive criticism of Motorola's procurement operation. (After all, the evaluation chart had its origin in customer ratings.) Thus the analysis serves as a two-way information channel.

In setting up a rating system of this sort there are many problems to be overcome. A major one was antagonism. Who ever heard of purchasing departments evaluating suppliers? Yet the sales force has been using charts like these for years. Some long-time purchasing agents claimed that they knew their suppliers without having to go through a rating procedure. And what was the use of rating the good ones anyway?

At first this presented a real stumbling block. It is true that many outlets had been giving good service to Motorola for years. However, when members of the department sat down and started to define the ideal supplier, everyone

realized that even good suppliers sometimes had a few minor short-comings. These minor faults, when extended through an organization, could multiply to thousands of little lapses cutting into the very lifeline of production.

And evaluation does not necessarily imply criticism or demerits. The ability to commend a supplier by means of a scientific appraisal of his performance is another step towards furthering good supplier relations.

When this chart has been fully tested and incorporated in all our offices, it will give Motorola and Motorola suppliers a common ground on which to thrash out our mutual problems. It will become one more tool in coordinating and improving our procurement division. On the basis of experience to date, we have reason to believe that it will be a most effective tool.

Air Filter Replacements

TERS	Please checand list th	k the file correct	AIR CONDITIONING ters in use in your AIR CONDITION data applying to your store, at or	ING SYSTEM Store #
Size of FILTER note the three DIMENSIONS	Filters	Filters NEEDE)	cooperation is always needed. He	r in your store, clean & fresh-your stor service will result by dusting every filter about twice each week.
20" x 20" x 1"			Clogged dirt in filters may some the nozzle of a vacuum cleaner o	etimes be removed by simply moving over the surface of the filter.
16" x 20" x 1" 15" x 20" x 1"	10		on hand stock (usually 3 to 12	be replaced with reserves from your times yearly depending on conditions
10" x 20" x 1" 10" x 10" x 1"			REMARKS	A S Beck Shoe Cortoration MANAGER'S SIGNATUPE
20" x 20" x 2"	18	24		E FDUSKIS
16" x 20" x 2" 15" x 20" x 2"			GODAYS .	arbas in gat Prints a via
10" x 20" x 2" 10" x 10" x 2"			are needed- Return to Purchasing Dept. 25W43rd St.	Store No. Date
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E are indebted to E. F. Duskis of the A. S. Beck Shoe Corporation, New York, for the form shown herewith, which he terms a "supplement" to the article "Keep Your Air Conditioners in Condition", published in the August issue.

The Beck Corporation operates a chain of 36 retail stores in Manhattan, Bronx, Brooklyn and Queens. These stores are air conditioned. The form notice, sent to all store managers, reminds them that the air conditioning system

needs personal attention and maintenance for best results. It suggests, as did the August article, that excess dirt should be dusted off the filters twice a week and that a vacuum cleaner is effective in removing clogged dirt. It points out that filters should be replaced when dirty—from 3 to 12 times a year, depending on local conditions.

To this end, reserve stocks of fresh filters are provided to be kept on hand at each location. The form further serves as a handy requisition to maintain these reserve stocks so that the air conditioning equipment may be kept in top operating condition at all times. It lists 15 standard stock sizes, with space for listing any additional special sizes which may be required. The store manager checks the number of filters in use at his store, by size, the number on reserve, and the number needed, and returns the form to the Purchasing Department for the procurement and issue of the needed items.

Getting the Most out of DIE CASTING

By Charles B. Mann, Purchasing Agent, and John J. Teige, Supervising Engineer
The Black & Decker Mfg. Co., Towson, Maryland

AST year American industry, seeking to reduce unit costs and maintain high production delivery of parts and sub-assemblies, purchased about 10% more zinc die castings and nearly 50% more aluminum die castings than it ever did before. As the first half of 1953 approached, it appeared that recourse to the custom die casting industry as a means of reducing product cost and improving product appearance was still increasing.

Buyers and potential buyers of die castings can add to the cost reductions inherent in the die casting process by close and intelligent liaison with the die caster and a practical consideration of the limitations of the process. Very few processes respond to a working knowledge of the "do's and don't's" in such a positive and cost saving manner.

Our company, which manufactures portable electric tools for industrial and utility use, has been buying die castings for the past 25 years and has seen the die casting industry come through the cut-andtry stage to its present high alloy purity in zinc, improved techniques in aluminum and magnesium die casting, and generally lower tolerance level. Today, about 70% of the cast parts for the more than a hundred models of Black & Decker tools are die cast. As a matter of fact, die casting purchases run up to about 3,000,000 pieces a year, for nearly 200 different parts. On the 1/4-inch drill there are about 75

parts, five of these being die cast items.

This company specifies die castings over sand castings generally because of the better surface finish attainable, the lower tolerances, the fact that holes can be cored instead of drilled and machining substantially reduced, and the faster delivery of volume requirements. Aluminum die castings lend themselves particularly well to obtaining the high degree of portability characterizing the major part of the Black & Decker line of tools.

The Right Supplier

Some of the factors we consider when selecting a die casting supplier are:

1. Close analysis and evaluation

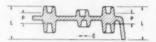
DIE CASTING Compared With Other Production Methods

	Stamping	Machining	Sand Casting	Permanent Mold Casting	Forging	Plastic Molding	Powder Metallurgy
Tool Cost	higher	less	less	less	equal	equal	less
Assembly Cost	higher	higher	higher	higher	higher	equal	higher
Possible Toler- ances Before Machining	higher	lower	higher	higher	higher	higher	higher
Productivity	lower	lower	lower	lower	lower	nearly equal	slightly lower
Waste Scrap	higher	higher	higher	higher	lower	equal	lower
Shapes Possible	less	equal, but cost	ly less	less	less	less	less
Strength	greater	greater	less	greater	greater	less	less
Available Materials	more	more	more	more	equal	fewer	fewer
Finishes (Appearance)	inferior	equal	inferior	inferior	equal	superior	equal
Section Thickness	thinner	thinner	thicker	thicker	thicker	about equal,	thicker
Cost Per Piece	higher	higher	higher	higher	higher	equal or lower	

DESIGN DATA

CASTING TOLERANCES

DIM APPECISO DY & AND BETWEEN PLUS POWERS IN GREGISTE MANAGEMENT



	E = BASIC DIM	E = LATERAL
BASIC VARIATION	: 005	² 005
ADDITIONAL PER	2 0005	: 0005
BASIC VARIATION	1 006	± 005
ADDITIONAL PER	± 001	2 001
	ADDITIONAL PER INCH OF LENGTH BASIC VARIATION ADDITIONAL PER	ACROSS & BASIC VARIATION : 005 ADDITIONAL PER : 0005 BASIC VARIATION : 006 ADDITIONAL PER : 001

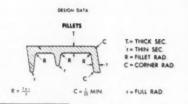
BASIC FOR "L" o I" OR LESS

WHEN DIMENSIONS I AND L OR P AND P ARE IDENTICAL
THE VARIATION FOR EACH INCH OF LENGTH = ODI
TOLERANCE ON PARTING LINE DIMENSIONS ON PROJECTED
AREAS GREATER THAN 80 SQUARE INCHES MUST BE
INCREASED CORRESPONDINGLY : 008 TO : 015
ADDITIONAL TOLERANCES WILL BE REQUIRED WHERE MOVABLE
CORES OR SLIDES ARE INVOLVED AND MUST BE DETERMINED
BY EXISTING CONDITIONS
LATERAL MISSALIGNMENT FOR 6" UNITS = 2E

ALLOY IS LESS IS GREATER THAN \$ THAN

DRAFT SHOWN IN TABLE
IS A PREFERABLE MIN AND
SHOULD BE INCREASED
WHERE DESIGN PERMITS
DRAFT ANGLES FOR
LETTERING AND MARKING
SHOULD BE 20° OR
GREATER PER SIDE





THICKNESS	Tat	PLUS
ris .	021	32
3 64	031	1 12
10	042	2
5 64	052	10
372	062	1/6
7 64	073	5 04
¥	083	377
9 77	093	377
5 52	104	7 04
3	125	+
7	146	*
1/4	166	11

FOR ZINC AND ALUMINUM THE GENERAL FORMULA FOR RAD 'R' AVOIDS BOTH AN' UNDESIRABLE SMALL AND OVERLARGE FILLET

FOR MAGNESIUM R = T (SEE DATA SHEET FOR SECTION JUNCTION DESIGN)

Design data used in product and die design.

of the die caster's past performance, and recommendations on a given product design. Study of these recommendations often provides a tipoff on just how the caster will stack up on die practice and economy, tolerance maintenance, and, very importantly, on delivery of finished parts.

2. If the sales or contact personnel of a die caster appears to be thoroughly trained in all aspects of die casting design and production it can almost always be safely assumed that he is backed by a sound and progressive engineering and production "team".

3. Careful consideration of working conditions in the die caster's shop and his current production commitments. Obviously, if a competent die casting company is too busy, there is the danger of unstable delivery.

4. Equally careful analysis of the die caster's past performance. They find, for instance, that certain die casters can get a casting closer to requirements much faster than others because they have better engineering, die design and construction facilities, and personnel on the job.

5. The importance of getting a casting "right" in minimum time is paramount to a company like Black & Decker, with manufacturing, distributor and advertising schedules depending on it, and price is not always the sole determining factor.

Having selected a die caster on this basis a general routine is followed.

Developing the Die

First, we submit part prints to the die caster, quite often supplementing the print with a sand cast model. The die caster then makes up a manufacturing drawing of the part, which is closely checked against the Black & Decker print and the neces-

sary corrections made before the die work is released.

The die is then worked up and the caster submits cast samples to Black & Decker for three major checkings, including 100% dimensional checking and a metallurgical check for porosity. Contours of the cast samples are carefully checked by means of a templet with integral inside and outside contours, a practice which helps reduce die cost and reworking time.

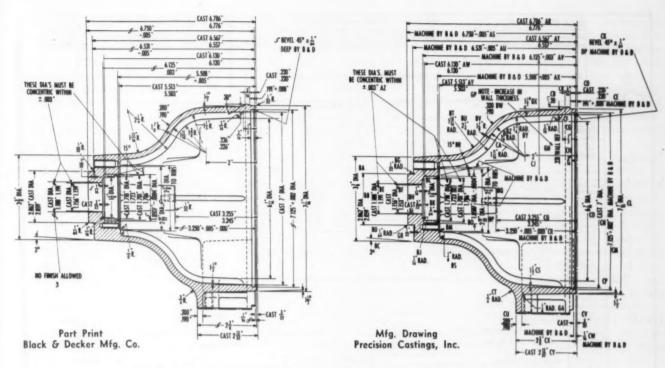
SOME POINTS TO WATCH IN PRODUCT DESIGN

DO'S

- Specify sections as thin as can be cast readily and still maintain casting strength and rigidity.
- Make cored holes and recesses of such shape as to minimize core cost.
- 3. Specify fillets on all inside corners.
- Specify integrally cast fastening elements if they result in lower assembly and over-all costs.
- 5. The design should be such that flash removal is simple and inexpensive.
- In castings to be buffed or polished, the particular areas should be designed to be brought easily into contact with the wheels or belts to be used for the purpose, avoiding deep recesses and sharp edges.

DON'T'S

- Avoid non-essential projections and unnecessarily complex shapes.
- Do not make cores so slender as to be easily bent or broken, entailing substantial replacement costs.
- Do not specify coring of holes less than 3/32" in aluminum or less than 1/16" in zinc.
- Avoid the use of "loose pieces" unless assured that they will provide a net saving in cost or other compensating benefits.
- 5. Avoid sharp outside corners.



Comparative Drawings for a Typical Die-Cast Part (End Bracket for 10" Heavy Duty Bench Grinder)

A source of substantial saving to Black & Decker depends on the elapsed time between receipt of the parts print by the die caster and his delivery of the approved as-cast samples. An efficient caster will be able to hold this interval to a minimum consistent with the customer's scheduling requirements.

Throughout the cycle of specifying and receiving a finished casting, teamwork plays an important part. Sales, engineering and purchasing all meet for discussion, sales being a strong factor in new design decisions. Engineering, of course, determines the best methods consistent with the sales potential of the parts.

Engineering lets purchasing know what it requires and; in turn, purchasing studies sources of supply and negotiates prices in collaboration with engineering. Purchasing also leans to a considerable extent on engineering for guidance as to

whether a supplier has suitable equipment for the job in hand. In a technical subject like die casting it is never wise to put it on a one man basis of responsibility.

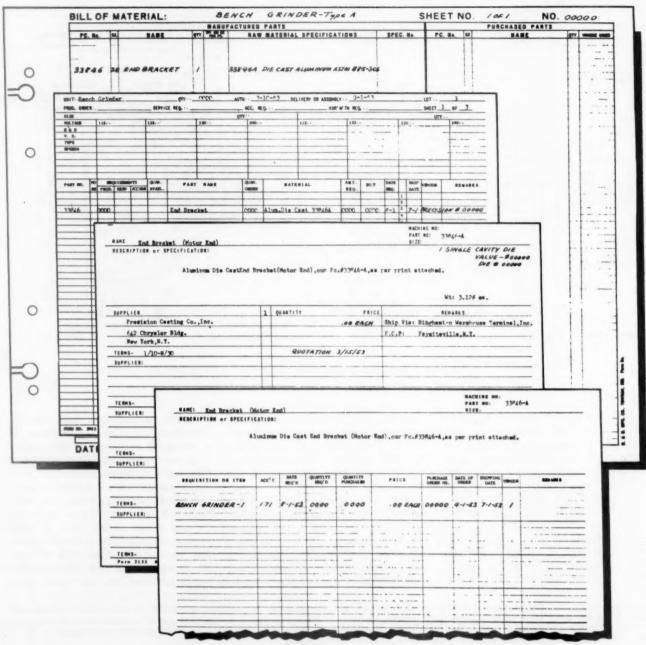
One of the more complex parts, a Black & Decker motor housing and switch handle case for a drill, involving major coring pulls at right angles to each other is an excellent example of fast and efficient production of the cast and approved samples. Here, the die was com-

Inspection of die cast Field Cases for Utility 1/4" Drill is made at Black & Decker plant when castings arrive from supplier. Operator is using an alignment gauge to see if bearing hole is in line with pilot diameter where gear case cover is located.

Castings of end bracket for the 6" Bench Grinder are carefully checked on arrival for specified dimensions and tolerances. Inspector is using a vernier gauge to check diameter where guard is to be mounted.







Control Forms for Purchasing Die Castings Bill of Material—Production Order—Source Record—Purchase Record

pleted and die cast samples shipped to the customer's plant in a 14-week period. From this point on it took about 6 weeks to have the part corrected, approved and the final die changes made.

A Typical Example

On the other side of the picture we might take a look into procedures at the head office plant of Precision Castings, Inc., at Fayetteville, N. Y., one of the principal suppliers of die castings to Black & Decker, and a leading independent custom die caster. One of the Black & Decker parts going through happens to be an end bracket for a

10" Heavy Duty Bench Grinder.

No part model was supplied by us in this case since there were no critical changes in dimension or shape, However, the Black & Decker parts print was a good example of just how a buyer of castings should lay out the required specifications and adhere to the design and process limitations for the most efficient, rapid and economical casting performance. A section view of this print is shown, along with the same section as supplied by Precision in its manufacturing drawing. It is interesting to note that in this manufacturing drawing all dimensional data has corresponding code symbols such as Fx., Fu., etc., thus providing a ready key to specific dimensions for fast telephone liasion and any last minute changes required by the customer.

The Black & Decker end bracket was cast of aluminum in a single cavity die, and following flash removal and degating, was visually inspected. In addition, two holes are hand punched, scraped and deburred and the parting line filed. A ¾" dia. hole was punched, the parting line on the straight side filed and the gate hole was reamed.

In this case the production line machining facilities of the fully integrated, nine-plant Precision Castings operation were not required since we have our own efficient machining and finishing set-ups fully capable of meeting the exacting tolerances and finishing requirements. However, many customers prefer to rely on the die caster for machining and surface finishing (including plating in various metals, enameling and even non-corrosive treatments) when such facilities are available, particularly when the alternative is to send the castings out to a machine shop or finishing plant and thus unnecessarily divide the responsibility for acceptable parts.

Precision Castings, Inc. engineers indicated that close cooperation with the customer in the design and die making stages often results in reduced die cast and construction time, product weight saving along with, at times, added strength and casting characteristics improved and finish. In the case of the previously mentioned Black & Decker end bracket a change of alloys from zinc to aluminum reduced shipping weight of the finished part by some 17 pounds with consequent reduction in shipping costs. Lower casting cost was also an important factor.

Using Product Models

On newly designed parts Black & Decker usually supply the caster with a part or product model, usually a sand casting, a wood or a plaster model. Models, particularly scale models, allow better visualization of how the die must be built, how the parts will be removed from

the die, and often help eliminate die errors. And, too, a good model will often reveal a number of possibilities for altering design features to the profit of the customer, particularly on complicated parts. It also eliminates the need for complicated templets. Accurately scaled models of parts designed for die casting can often be used as patterns for plastic forms suitable for duplicating machine use in cutting impressions in steel die blocks.

Models also provide more positive assurance of the most attractive shape and contour of the casting, thus affecting the final sales appeal of the product considerably. However, despite the value of a model, it must always be supplemented by fully detailed parts prints or working drawings of the type illustrated here.

Alternative Methods

Quantity of parts required within a given period is also a determining factor in selection of the production methods. At Black & Decker a part is usually specified as a sand casting if the annual requirements are in the order of 2,000-4,000, and as a die casting if higher production is required or anticipated. This is particularly true where the minimum annual parts requirements will run over the 10,000 mark. The trend in general today indicates that dies can be amortized under decreasing annual volume requirements.

In certain instances involving new

parts or substantially redesigned components the initial production runs will be in sand castings, thereby allowing sufficient time for sales department analysis and limited market and distributor sampling. When the "bugs" have been worked out and the product changes made, the die casting process is then specified.

Long experience in the buying of die castings enables Black & Decker design engineers and purchasing executives to avoid specifying outside the limitations of the process. For instance, we design a part which calls for the minimum number of pieces in a die; we try to eliminate undercuts, and avoid the use of combination dies wherever possible, and observe the best current design practice. Unit dies are ideal in practice. A die caster should always check with the customer on how the die will be put together, what parts will be cast together, etc.

Most good die casters provide adequate data to assist the customer, even those not too experienced with the specifications and buying of die castings, in designing his product to take full economic advantages of the process. A sample of this type of design data is shown in an accompanying chart representing but a few of the considerations involved.

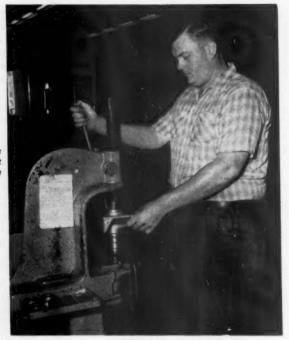
Despite the amount of data available, the importance of consultation with a good casting design engineer cannot be emphasized too strongly. His experience may be invaluable in arriving at the design

Left: After end bracket castings have been inspected and found up to specifications, and machined, they go into final assembly with rotor unit. Right: Inspector checks the die cast handle of 1/4" Utility

Drill with a combined flush pin and alignment gauge. Decimal dimensions are checked from face of the switch handle to inside bosses where handle is mounted on the field case.







Installing a switch ring in the 6" Bench Grinder and bracket is one of the early assembly stages for this casting.

which best meets the requirements for appearance and utility and for low cost die casting.

Errors on dimension and poor finish are the two primary reasons for rejection of die-castings at Black & Decker. Inspectors check wall thickness, sizes and surface finish, particularly, since it must be good enough for buffing and polishing. Not too many tools are painted or lacquered. The end bracket is lacquered, at present, and this operation emphasizes surface flaws. Eventually, it will be baked enamel finish. Die checks are major problems and are signs of worn dies. When checks are discovered our inspector brings the matter to the attention of the engineering department to study the possibility of the die replacement.

Design Factors

A few of the cost-influencing considerations involved in designing a minimum cost die casting, with which many purchasing agents are now fairly familiar, and which may be obtained in much more complete data form from die casters, include:

Parting Line. Proper location of this line, where the two halves of the die come together, enables the cast part to be most easily removed from the die and locates the waste flash metal where it can be most quickly and cheaply removed. Generally the parting line comes at the maximum diameter of the part for economy.

Ejector Pins. These movable pieces

should be located so as to leave no objectionable marks on the casting. Generally the customer indicates the surfaces on which he does not want ejection marks and depends on his supplier to properly locate the pins.

Wall Thickness. Wall or section thickness should be as nearly uniform as possible. This thickness should also be held to the lowest practical limits so that weight of metal required is held to a minimum, better surface finish attained and higher casting rates made possible, all important factors affecting cost. Addition of ribs and good coring practice often improves wall thickness practice.

Ribs. Cast ribs also add strength to thin wall castings, reduce deformation of hot castings, and of course, help reduce shipping and material cost.

Studs. Plain integral studs are practical with zinc and cost less than the studs threaded after casting if minimum diameter allowances (approx. ¼") are observed. Studs cast in this manner can also be used instead of separate rivets and may be spun, headed or staked to provide permanent assembly to mating parts.

Fillets. Sharp corners, comprising areas of structural weakness can be avoided by small radius fillets, and fillets on internal corners of castings reduces die working time and costs. Fillets also prevent organic finishes from thinning out, reducing many consequent rejects.

Threads. Cast threads, (coarse and with good leads) are less expensive

than cut threads but it is best to discuss the question of threading with the die casting engineer before specifying cast or cut threads, in order to clearly define the limitations.

Flat Surfaces. If flat surfaces of sizable area can be avoided (by carving, drowning, beaded or stepped) better finish can be attained by standard methods, rejections reduced and costs cut down.

Cores. Cores forming integral parts of the die are least costly, and this type should be placed so that their axes are parallel to the motion of the movable die section—large, deep holes should always be cored in order to keep costs down and maintain weight advantages.

Drafts. Drafts on cavity walls and on cores are needed to eject castings from the die and generally the deeper (or longer) the casting the greater the draft required. The die caster usually indicates suggested drafts on his manufacturing drawing and generous draft contributes to die and core life. However, an excessive draft will add to machining cost.

Inserts. Inserts help increase strength, hardness, wear resistance, flexibility and adds properties not possessed by the casting itself. They also allow assembly at less cost than can often be achieved by other means. Inserts are usually cast in place.

Tolerances. Close tolerances which are not functionally necessary constitute one of the most common and and costly die casting conditions. Where no mating fit is necessary fractional dimensions without limits are sufficient, indicating that only scale dimensions are necessary. If dimensions are so close as to call for machining, allowance for the extra cost should be made.

Die casting suppliers maintain that purchasing agents, particularly in those companies buying volume die castings, are showing an ever-increasing awareness of design factors as a means of reducing costs, even though many of them are not trained. The modern custom die caster is also finding out that it pays dividends to provide alert purchasing agents with clear cut, understandable data covering those factors which invariably influence product costs. Assistance which helps the customer or die casting prospect protect himself against costly specification practices is becoming an added, powerful sales tool.

Courtesies Pay in Purchasing

By Douglas C. Basil

THE oft-quoted Golden Rule—
"Do unto others as you would have them do unto you"—has great application in the field of purchasing. In the majority of cases, companies are both customers and suppliers in the industrial field. Therefore any courtesies a company extends to other companies through its purchasing policies will, in time, be extended to its own salesmen by the adoption of these policies in other companies. And the purchasing department itself also stands to benefit by this exchange of courtesies.

Generalities about "good vendor relations", prompt and courteous interviewing, and the like, are of course elementary. The following suggestions are somewhat more specific in dealing with phases of purchasing practice frequently overlooked. With a long range view in mind, the adoption of these policies can benefit the individual company, as well as industry in general.

Unsuccessful Bidders

It is common purchasing procedure to ask for competitive bids on pending orders. It is sometimes forgotten, however, that gathering the information and submitting the quotation may be a costly and time consuming task, particularly when it involves some designing, preparation of blue prints, etc., which is usually done at the vendor's expense. Many buyers look upon this as merely a legitimate part of the vendor's sales expense, but in the light of the considerable time and effort involved in making any quotation, it would seem that a purchasing department should extend the courtesy of sending unsuccessful bidders at least a form post card informing them that their quotation

was not accepted. It is better to do this than to wait for a salesman's follow-up after the order has been placed elsewhere, which leads to a sense of frustration and possibly a feeling that his company has not had a "fair chance" to get the order.

A further reason for informing unsuccessful bidders is that a bidder may keep his order open and perhaps keep his planning department warned of a possible impending order for some considerable time. This works a particular hardship on the smaller supplier with limited capacity, who has committed himself to a delivery promise in his bid and must keep that capacity open until he receives the order or is informed that he isn't going to receive it.

Additional benefits will accrue if the notification indicates the reason for rejecting the bid. A check list on the form post card makes this easy. Suggested reasons to be checked: Too long delivery date; Price too high; Our order cancelled; Buying locally to save on freight charges; Higher quality demanded; Wish branded merchandise; etc. This courtesy will aid the purchasing department to foster and maintain competition among its suppliers. Nothing discourages a potential vendor from bidding more effectually than having his bids consistently rejected without knowing why. Learning the reason, he also learns more about the customer's needs and about his own competition, and instead of losing interest in the account he can set about remedying his own shortcomings. Today's unsuccessful bidder can become tomorrow's valued supplier, to the benefit of the buyer and his com-

The acknowledgment copy of the purchase order is an extremely use-

ful tool, but many purchasing departments have difficulty in getting them returned. If, in addition to "educating the vendor", the purchasing agent were to investigate the sales order department in his own company to insure that acknowledgment copies were promptly returned to purchasers, it would seem that eventually such a practice would become more widespread than it is at present. Although no one can claim that this is a responsibility of the purchasing department, nevertheless the extension of this courtesy might well, in the long run, benefit the company concerned in the prompt return of its own acknowledgment copies.

Expediting

A similar situation exists in respect to expediting. This is perhaps one of the most costly and difficult tasks within a purchasing department, yet often a necessary one. Again, if the purchasing departments would make it their business to have shop and sales order departments inform their companies of any possible delivery delays, as these arise, as a matter of regular policy, this would eventually reduce the task of expediters in all companies, eliminate one source of friction, and relieve one of the major headaches of purchasing.

Although the last two suggestions may be considered outside the scope of the purchasing department's duties, it is always the purchasing department that ends up with the necessity of contacting and dealing with the suppliers, and all departments are properly concerned with the improvement of general business practices.

ness practices.

Thus the strategic position of the purchasing department in its contact with other companies, and the strong cooperative spirit that exists among purchasing agents, lead to the conclusion that purchasing agents are the logical choice to institute such a courtesy campaign.

THE AUTHOR is an instructor in Industrial Management at Marquette University, Milwaukee and has been associated with the purchasing department of the Falk Carp.

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Sales Made on Approval

By Albert Woodruff Gray

CASE recently before the Virginia Supreme Court involved the sale of air conditioning equipment under an agreement that the buyer operate the unit on approval for a week and, at the end of the week, if the apparatus was not satisfactory it would be taken out and the contract cancelled. If, on the other hand, it was as represented, the purchaser would pay as agreed.

The dealer received no notice of any dissatisfaction until months later when he sent a bill for the agreed price and the restaurant owner ordered the immediate removal of the equipment. The dealer refused to accept the return of the unit and sued for the amount agreed to be paid. In his defense the purchaser contended that this apparatus had been installed on approval, had proved unsatisfactory, and that the seller had refused to remove it after notice demanding that he do

Delay Implies Approval

This buyer, the court held, by his delay in giving notice of his unwill-ingness to complete the purchase, had accepted the equipment and was liable for the payment of the price.

"Under a contract for sale on approval or trial, certain obligations are placed upon the buyer as well as upon the seller. It is true that where the contract is for a sale on trial or if the goods shall suit the *aste of the buyer, the contract is not executed till the buyer has had an opportunity to try or taste.

"It is inconsistent with the nature of the right or privilege thus given the purchaser that there should be any unnecessary delay in the exercise of it. The seller in the meanwhile is deprived of the use of his property and perhaps of the opportunity for resale. These considerations are sufficient to require promptness and forbid needless delay on the part of the purchaser.

"If it appears that he had ample time and opportunity to test and examine the article and ascertain its quality or capacity and might have conveniently have done so but neglected to do it, such neglect should be regarded as a waiver of the right and as an election on his part to retain the propery."

Point of Sale

A controversy over when the buyer becomes the owner of goods purchased on approval in this manner occurred a few years ago in the imposition of a sales tax by the state of Kansas on the sale of goods by the Missouri branch of a large mail order house. The company had been accustomed to receive mail orders from Kansas purchasers at this branch in Missouri. If the particular goods so ordered were not in stock, the store was accustomed to substitute others which were shipped subject to the approval of the customer.

Merchandise sold in this manner, aggregating \$971,617, was claimed by the state of Kansas to be subject to the sales tax, while the company contended that the sales had been made in Missouri when the goods were shipped by this branch store where the ownership of the goods passed to the buyers.

The decision of the Kansas court was that the buyer became the owner in the state when he approved and accepted the goods he had received and until he gave the seller that notice, either express or

implied, the goods remained the property of the dealer.

"There are two rules with reference to this general type of sales," said the court. "One is known as a contract of sale or return, that is, where the sale is made with the option to return. In those cases the title passes to the buyer and the sale is completed upon delivery to the carrier regardless of the fact that the customer has the right to return the merchandise.

"The other is a sale on trial or approval. These are cases where the contract is to purchase certain goods if they prove to be satisfactory when delivered. In those cases the title does not pass until the buyer has expressly or impliedly expressed his approval or acceptance."

Responsibility for Loss

This difference was stated more tersely by a Massachusetts court. "An option to purchase, if he elected, is essentially different from an option to return and purchase if he should elect. In one case the title will not pass until the option is determined; in the other the property passes at once, subject to the right to rescind and return."

The distinction between these two different types of sales contracts becomes a determining factor in allocating the loss when goods are lost or damaged before the transaction is terminated.

A contract for the sale and installation of farm machinery made with a Vermont purchaser provided, "This outfit is subject to 30 days free trial." After delivery to the customer and within this 30 day period the machinery was destroyed by fire.

In its interpretation of the effect

of this provision on the liability of the buyer, the court said that a purchaser of this nature, in the absence of a special contract fixing the degree of care to be exercised by him, is liable only for such injury to the property as results from his failure to exercise due care and diligence in its use and preservation. The buyer, until he becomes the owner, is merely the custodian of another's property under these circumstances, and neither the property nor the responsibility for its loss is his.

Fixed or Indefinite Time

The Virginia court in the action involving the sale of the air conditioning equipment said of the time in which goods sold on approval fixes the time within which it must be determined that the sale will be consummated. If the contract does not fix the time, the law adopts the rule of the time that is reasonable under the circumstances. If the buyer retains the goods beyond such reasonable time his title cannot thereafter be avoided."

A contract for the sale of two compressors, made by a Pennsylvania dealer with a manufacturer, contained the provision that the agreement was "subject to cancellation by either party at any time upon 30 days written notice by mail and in the event the contract is cancelled the manufacturer agrees to accept the return from the dealer of any part of the equipment."

The contract was cancelled by the

dealer could exercise this right of returning the equipment is stated in the contract; therefore such return or tender or agreement to return must be made within a reasonable

"This was a commercial transaction involving equipment which the dealer was in the business of selling at and after the date the contract expired and the sale if made at the list price would mean 30 percent profit to the dealer. If the dealer desired to be excused from delivering the equipment in a reasonable time after the cancellation of the contract it was his duty to contact the manufacturer and receive a refusal or acceptance. This he did not do and the tender of delivery on December 21st was after the expiration of a reasonable time under the circumstances."

which the buyer mus

Dimos v. Stowe, 71 S.E.2d 186, Virginia

Montgomery Ward & Co. v. State Com'n., 133 Pac. 2d 1008, Kansas

REFERENCES

Hunt v. Wyman, 100 Mass. 198

Fox v. Davey Compressor Co., 178 Atl. 469, Pennsylvania

N. Y. Personal Property Law, sec. 100

Fred W. Wolf Co. v. Monarch Refrigerating Co., 96 N.E. 1063

46 Am. Juris. page 666

Mulcahy v. Dieudonne, 115 N.W. 636, Minnesota

must be rejected if they are unsatisfactory,

"Where goods are sold upon trial or approval, it is a general rule that the buyer may subject the subject-matter of the sale to a test or trial in a manner which will enable him to determine whether or not the article fulfills the terms of the contract. If he determines that it does not, it is his duty to give notice of this fact and of his rejection of the article for this reason.

"Frequently the contract of the parties for sale on trial or approval manufacturer on April 17th. On December 21st of the following year, twenty months later, the dealer trucked these two compressors and repair parts to the manufacturer's plant at Kent, Ohio, demanding the repayment to him of the amount paid under the contract, which was refused.

The dealer then sued to recover the money it had paid. In its decision of the action the court held that there were no grounds on which such a recovery could be had.

"No specific time within which the

Use Constitutes Acceptance

The law governing the time in which the buyer must give the seller notice of his rejection of goods delivered on approval has been summarized in a New York statute.

"When goods are delivered to a buyer on approval or on trial or on satisfaction or other similar terms, the property therein passes to the buyer (a) when he signifies his approval or acceptance to the seller or does any other act adopting the transaction; (b) if he does not signify his approval or acceptance to the seller but retains the goods without giving notice of rejection, then, if a time has been fixed for the return of the goods, on the expiration of such time and if no time has been fixed, on the expiration of a reasonable time."

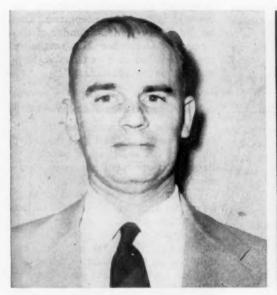
A contract for the construction and installation of a refrigerating plant in Chicago, Illinois, for \$21,-300, contained the provision,

"After the plant is started we will furnish an engineer to have charge of the operation of the machine for ten days, during which time we will do the work and produce the temperature herein specified. At the end of the above mentioned ten days you shall accept or reject the plant, it being understood however, that if it shall meet the requirements of this proposition it shall be accepted. If rejected you shall notify us in writing thereof and hereby permit us to enter the premises and remove the same without charge to you and upon refunding to you whatever money has been paid us."

(Please turn to page 362)

Borderline Ethics By Harold C. Woodruff

Purchasing Agent, Ultralite Products Company, Los Angeles



Left: P. A. Harold C. Woodruff, a University of California graduate, acquired his practical experience as a buyer in the western aircraft industry prior to assuming his present position with Ultralite Products Company in 1948.

Right: The improved status of purchasing personnel in modern business has eliminated many of the incentives that formerly bred unethical practices.

F we were to believe all that has been said about the moral breakdown and lack of ethics among people in general, it would be necessary to predicate this article on the assumption that honest buyers are virtually extinct today. But, fortunately, this is the very antithesis of the truth.

There has never been a time, in any country, in the history of the world, when a purchaser had as many good reasons for being honest and ethical as the average industrial buyer in the United States today.

First of all, thanks to the efforts of organizations like the N.A.P.A. in setting and publicizing high standards of ethical conduct, the buyer is so well aware of his obligations that he cannot possibly plead ignorance if he is tempted to indulge in corrupt or shady prac-

tices for personal gain. Secondly, due to modern methods of accounting and controls, he realizes that few discrepancies in his activities can be effectively camouflaged. Finally, being generally a well paid and respected member of his company and community, he lacks the incentives that cause men of otherwise reasonable intelligence to act dishonestly.

However, there are right and wrong ways, wise and unwise ways, of handling situations where ethical practice is involved, and it takes a good measure of common sense, sound judgment, and experience, as well as an ethical conscience, to do the right thing.

For example, a purchasing agent of my acquaintance was recently confronted by the case of a young buyer who, for no apparent reason, had placed an order with a firm that had quoted a relatively high price for its merchandise. When questioned about the matter, the buyer said, with some self-righteousness, that he had refused to patronize the firm making the lowest bid-one of the company's old and reliable suppliers, by the way-because "they offered to give me an expensive wrist watch, and I know they were doing it for the sole purpose of influencing my judgment.'

Now this company, like many others, has a policy of discouraging the acceptance of gifts from suppliers. To that extent, and in his resentment at the proffered "bribe", the buyer saw his ethical responsibility clear, but his handling of the situation by summarily rejecting the gift and the bid left much to be desired. He would have done much better to report the situation and

explain his feelings in the matter, and what he might have learned by this procedure might have altered his decision.

It so happened, as the purchasing agent well knew, that this particular supplier also had a policy—a policy of expressing good will toward those with whom he did business. These expressions, or gestures, were rather extravagant at times, but they were a matter of business policy with him, and he didn't discourage easily. By his

What to do about this buyer? His intentions were good, but his judgment was poor. Perhaps the same could be said about the supplier. The purchasing agent decided to charge the whole incident to training and experience, rather than letting him go and allowing another company to take advantage of the lesson he had learned at the company's expense and bringing in another man who might have duplicated his mistakes. He explained to the young man—taking care not

received calls from men who indentified themselves as buyers for noncompetitive firms and asked for information regarding price quotations we had received for various products, explaining that their requirements were so urgent that they couldn't take time to obtain competitive bids.

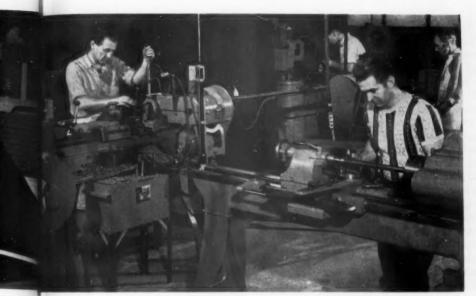
Now there is nothing wrong about the idea of helping a fellow P.A. with information regarding prices or anything else, so long as you are certain that you are not violating a supplier's confidence, or that it won't hurt your company, or give the other fellow some unfair advantage over his competitors or in his dealings with suppliers. But, as of this writing, we have not encountered a single situation in which the release of such price information could be justified, on careful investigation. In other words, it usually develops that such inquiries are not legitimate requests for information, but are underhanded tactics devised solely for the purpose of helping a company to outbid its competitors.

One of these sharpies recently called a western firm that did not have a specialized purchasing department. Without the specific code that a truly professional purchasing man observes as a matter of course, this normally reputable firm is inclined to improve where ethics are concerned. The officials who took the call realized at once that somebody was trying to gain an unfair advantage, and his snap judgment was that two could play at that game, and that it would serve his inquirer right.

Consequently, he himself flagrantly violated elementary purchasing ethics by leading the caller to believe that his competitors were quoting prices well below the level of actual bids. The ensuing developments might have been characterized as a comedy of errors, except that both parties to the deception turned out to be heavy losers.

In the course of the conversation, the caller casually tossed in a still lower bid on some products that the company regularly used, and the amateur buyer who had led him astray snapped up the offer, as expected. To make a long story short, the bidder could not produce first quality products at the price he had agreed to accept, and after long and fruitless controversy the buyer who had outsmarted himself was obliged to accept a large quantity of machined steel parts as deviations, and

(Please turn to page 364)



Above: Good ethics are good business. Ethical purchasing practices improve supplier relationships and facilitate the procurement of reliable materials at reasonable prices.

standards, the watch was not intended as a bribe to support an exorbitant bid—his quotation would have stood on its own merits; it was an occasion to show good will to a new man handling his account in the customer's company.

The net result, in this instance, was that the buyer's judgment had been influenced, but not in the way that the supplier had intended nor that the buyer imagined he had intended; it had been influenced into making a very poor buying decision. The buyer had offended one of his company's most reliable suppliers, and had spent about \$200 more than he should have in issuing a purchase order. In effect, the company was committed to paying an extra amount equivalent to the cost of the watch, without receiving any value in return.

to destroy his ideals or lower his ethical standards—that the imporant thing is to bring such a situation out into the open, where intentions could be evaluated, and that there are instances—of which this was one good example—where exceptions might have to be made to any general rule in the light of particular circumstances, without compromising the principles involved. Ethics are largely a matter of intention, and it requires experience, good judgment and tact to handle such a situation properly.

A point that should be constantly borne in mind by anyone who endeavors to adhere to a code of ethics is the fact that a certain number of unscrupulous persons will always attempt to utilize his ideals as a matter of convenience. For instance, this writer has on several occasions

Evolution of a Purchase Order Form

THE Purchase Order form is generally accepted as a commonplace, routine sort of document, usually taken pretty much for granted. Yet it is one of the important working tools in any purchasing system, and working tools should be just as efficient as it is possible to make them, adapted to the particular job. Further, the typing and distribution of Purchase Orders is something of a production operation in the Purchasing Department, and that, too, is an aspect that calls for good planning, methods and procedures.

It is natural that Purchase Order forms generally follow a rather standard pattern or arrangement, providing certain basic information, with minor variations as may be required to meet special conditions in the individual company and to fit in with established office procedure. In adopting a Purchase Order form, therefore, the easy line of least resistance is to take one of the standard stock forms that are offered by office supply manufacturers, or to select one from among the scores of specimens that regularly flow into every business office from other firms-choosing one that seems to be adapted to your own operation, contains all of the essential data, and is of reasonably pleasing appearance-insert your own company name and address, figure out the number of copies required, and send it to your printer.

You have prima facie evidence that it works for some one else; so why

Yet many purchasing agents have found that it pays to study the Purchase Order form and give serious attention to the details of layout and production. It pays in terms of greater office efficiency and better results. And even after the most careful consideration, the experience of working with the form may point the way to still further refinements and improvements for better performance.

A pertinent case in point is the Purchase Order form of Norden Instruments, Inc., Milford, Conn., where an exceedingly thorough and effective development job has been done to produce a single form that meets the exacting requirements of several different types of orders involved in the purchasing program, with a maximum of simplicity and efficiency in office operations.

First, there was the question of production method, which was complicated by the fact that much of Norden's work is on Government contract, where regulations call for varying numbers of extra Purchase Order copies for different types of orders and different dollar value brackets. The original plan, or starting point, contemplated a form with sixteen parts to the set. But when tests were run on electric typewriters set for the greatest number of clear copies, this was not found to be feasible. Successive revisions developed a twelve, ten, and finally a five-part form, with provision for otherwise reproducing the required extra copies. In the present form, inserted one-time carbons are used. The snap-out type has been under consideration as a means of further reducing the time required for separating the carbons and copies.

The present Purchase Order set consists of the typed original and four copies, readily produced on standard office typewriter equipment. This provides the original and acknowledgment copy which are sent to the vendor, a copy for the Accounting Department, and a working copy for the Purchasing Department. The fifth copy is a Rem-Master hecto sheet capable of producing up to 20 additional clear copies, as required, by the spirit duplicator process.

Typed copies are distributed immediately. The Master copy is then used to run off additional copies as follows:

2 copies for the Accounting Department.

3 copies for the Purchasing Department-one filed numerically. with correspondence; one filed alphabetically by vendors' names, for follow-up; and one copy for the buyer.

1 copy for the Production Control Department.

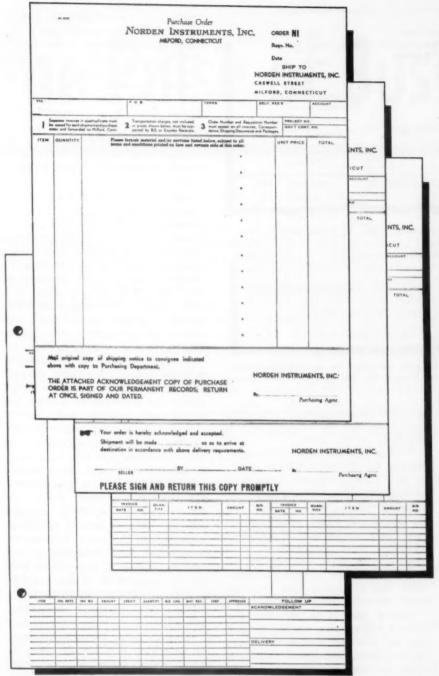
1 copy for the Facilities Depart-

1 copy for Tool Engineering, if the order shows charge for tools.

1 copy for the Production Department, on orders showing Government Facility Item numbers.

Additional copies are also run off for the Government, as required, ranging up to 6 copies on orders for

The Purchase Order form described in this article was developed over a period of several months under the direction of Walton Klages, then Purchasing Agent of Norden Instruments, Inc. It is presented here not only as an excellent example of its kind, but to emphasize the importance of (1) adapting forms to the particular requirements of the company; (2) coordinating forms, as working tools, with processing and record procedures throughout the organization; and (3) selecting production methods and refining details of design in the light of actual experience in using the form.



The four copies produced in the original typing are identical in layout except for the working area at bottom of sheet and the extended binding margin on Purchasing Department copy. They are identified by color and in a heading notation. Vendor's copy and acknowledgment have terms and conditions printed on the reverse side.

Production Items, Navy Source Inspected, involving over \$5,000.

The section of the Master copy showing unit and total prices is then folded back, and additional copies without price information are run off for distribution as follows:

1 copy to requisitioning department (except Production Control); if the order covers requisitions from more than one department, copy is prepared and sent to each requisitioning department.

1 copy to Receiving Department (consignee); if more than one des-

tination appears on the Purchase Order, copies are made for each.

1 copy to Inspection Department. The Master copy and spare copies of the order are then filed numerically in folders for future use.

The Hecto Master has advantages beyond the flexibility it provides in duplication of additional copies. The possibility of easily eliminating price information on certain copies has already been noted. It also includes a row of ruled spaces which are coded to serve as a "flow chart" indicating the distribution and the

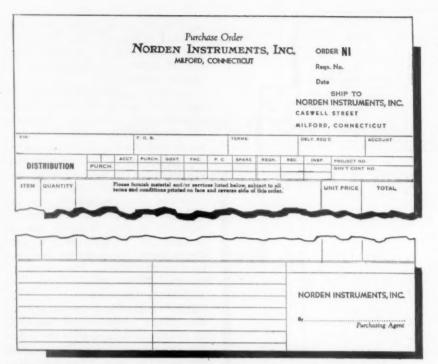
number of copies to be distributed in each instance, thus facilitating the preparation of the right number of copies and their proper and speedy distribution.

Another consideration was the fact that purchases made under Government Facilities Contracts must specifically include certain terms and conditions which are not generally applicable to regular purchases made for the company's own account in the normal course of business. Some companies use two different forms to meet this requirement. At Norden, to avoid this and to have one "all purpose" Purchase Order form, the problem has been very simply solved. The company's standard Terms and Conditions are printed on the reverse side of the vendor's copies, as is common practice. Then, immediately below, is an additional section with the heading, "Purchases under Government Facilities Contracts". The first paragraph in this section states:

"In the case of materials, articles or services covered by this order and purchased in the name and for the account of the United States of America, the following terms and conditions, in addition to those listed above, will also apply:"

This is followed by the mandatory Government clauses of the contract. All applicable terms and conditions are specifically included in the purchase agreement by reference on the face of the Purchase Order.

Another simple device in the layout of the order form contributes to its suitability and utility for this double purpose. A light dotted line sets off a vertical column at the right side of the section where the items or materials purchased are described, just to the left of the price columns. When typing an order for materials purchased for the account of the Government, this column is reserved and used to indicate the applicable item number of the facilities. The space is also used, on occasion, in non-Government purchasing, when a single Purchase Order covers several different requisitions. Ordinarily, the requisition number is indicated in the heading of the order. When more than one requisition is involved, the order typist writes "See below" in the heading, and inserts the several requisition numbers in the dotted line column opposite the respective item descriptions. Of course, when the space is not required for facility or requisition numbers. the dotted line is dis-



Hecto Master copy has a space in the heading for indicating the required extra copies and their distribution, and an all-purpose ruled block in the working area for miscellaneous entries and processing requirements.

regarded in typing the order, using the full column width for description of the item.

In this connection, one small detail of form design and revision is worth noting as indicative of the attention and care with which this form has been developed. In the original layout, the lines: "Please furnish material and/or services listed below, etc." were centered over the space outside the dotted line. With this arrangement, it was noted that order writers were inclined to confine their typing to the space within the dotted line, regardless of whether the extra column was required or not, thus making a rule of what had been intended as an exception. In revising the form, these lines were centered over the entire space and the dotted line was made lighter, with the result that typists now utilize the full width of the Purchase Order except in the special cases where the indicated column serves a useful and necessary pur-

Other detail revisions which have contributed to making this a more efficient form include a rearrangement of data in the Purchase Order heading—bringing the consignee's name up to the same level as the vendor's address, and listing "Via, F.O.B., Terms, etc." in a single horizontal line instead of in columnar form as before. This speeds typing, since fewer machine settings

are now required, and it has added nearly an inch of working area in the body of the order.

Norden has one central receiving station for its two Milford plants so the Caswell Street address is printed on the order form as the shipping destination. Before this system was in effect, while temporary quarters in several different locations were involved, it was necessary to type an address on each order. The present arrangement has simplified this requirement. However, care has been taken to space the lines so that the printed address can readily be X'd out and another destination typed in, for those occasional instances when this may be necessary.

As in many other companiesperhaps more so at Norden than in most-a considerable number of purchase orders cover many items, so that more than one sheet is required to write the complete order. In typing additional sheets on the regular Purchase Order form, all the details of destination, terms, routing, F.O.B., and the like were copied on each sheet, though there might be as many as five or six parts to the order. To overcome this repetitive clerical work, a Purchase Order continuation sheet was devised, with a simplified heading that requires only the typing of vendor's name, order number, and page number. This has been a tremendous time saver. Further-

more, this condensation, or elimination, of heading detail allows half again as much room in the body of the form for typing the details of the order, as compared with the regular Purchase Order form, so that an order which formerly required five pages to write up all details of the purchase can now be comfortably accommodated on the original form and two continuation sheets, containing the same information.

The pink working copy of the Purchase Order, which is the Purchasing Department's record of the transaction, has several interesting features. It is a half inch wider than the other copies, allowing for marginal punching at the left so that the sheets can be filed in a post binder for easy reference. (Even a simple arrangement like this entails additional care in layout so that printed columns and entries do not get crowded into the binding margin, interfering with efficient use of the form. The bottom of the sheet is ruled to carry a complete record of receipts and billings against the order, miscellaneous charges, inspection, approval, acknowledgement and follow-up data. A somewhat similar, but simpler ruled form appears on the Accounting Department copy, since that department is currently charged with the duty of invoice checking; nevertheless, the same information is recorded in Purchasing, in the interest of having a complete record on hand, even at the expense of some duplication in posting.

There is a diagonal perforation across the upper right hand corner of the Purchasing Department copy. By detaching this corner, there is quick visual index in the order file, indicating those orders which are complete, partially filled, or still unshipped.

The system and the form, as now in use, have proved very satisfactory. However, the Norden people are by no means ready to say that it is the "last word". Experience in using the form is constantly bringing out opportunities for further slight changes-and some, perhaps, not so minor-that may increase the efficiency of the form. In the most recent printing, for example, the instruction to the vendor concerning acknowledgement and shipping notices, appearing at the bottom of the original, was changed to a bolder style type to gain addi-

(Please turn to page 358)

The Pulse of Business

OCTOBER, 1953

PURCHASING'S Summary of e c o n o m i c c o n d i t i o n s

For many years, American leaders have tried to convince our assorted critics and enemies that "Wall Street" does not necessarily reflect the complete economic situation in this country, nor does it control and direct our activities.

Some of that type of economic education is now being directed at a number of our best friends right here at home - the fairly substantial number of investors and businessmen who have interpreted the recent slump in stock prices as the beginning of a long-feared depression.

It is being pointed out that the stock market is an overly sensitive - and often unreliable - barometer of economic conditions compared with other indicators. In 1946, for instance, stock prices took a bad slide and it was felt that we were in for the "inevitable" postwar crash. Yet business in general was just beginning a boom of tremendous proportions that lasted into 1949. Meanwhile stock prices remained soft.

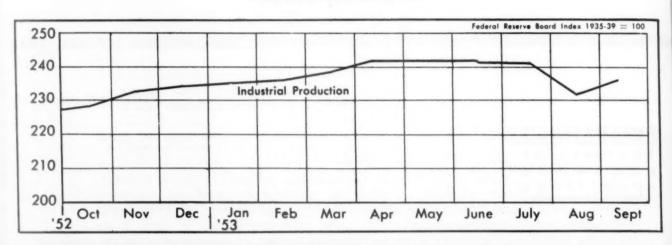
The market is undoubtedly reacting to the widespread talk of a "let-down", "slide-off", "mild recession," or whatever else it is called that is expected next year. But, the experts point out, there's another and equally important factor that helped depress prices - the tightness in the money market. Investors needing cash apparently have been selling in greater than usual numbers.

Admitting that part of the stock market decline can be attributed to the immediate outlook for business, can we expect an equally severe change in general economic conditions? From many impressive sides the answer is a flat "no."

High employment and personal income, the prevalence of overtime, the protective price supports for farmers, the intention of the government to take steps to prevent a "recession" from getting out of hand—these are just a few of the cushions economists and forecasters are counting on to absorb most of the impact from a fall. Our over-expanded economy, they say, could take a setback of about 10% and still leave us in pretty good shape. They feel we need not expect any greater adjustment than that.

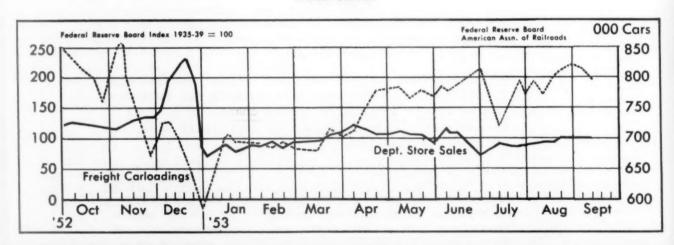
THE PULSE OF BUSINESS

PRODUCTION



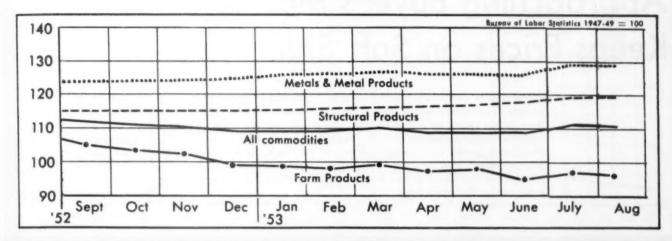
	BASE	LATEST	MONTH	YEAR	% OF CH	ANGE IN
	DASE	LATEST	AGO	AGO	MONTH	YEAR
Industrial Production Index	1935-3910	00 238	233	215	+ 2.1	+ 10.7
Steel Production (Weekly)	000 net tons	2,000	2,170	2,093	7.8	_ 4.4
Electric Power Production (Weekly) Bituminous Coal Production (Weekly)		8,694 9,570	8,464 9,400	7,324 9,199	$+2.7 \\ +1.8$	+18.7 + 4.0
Auto, Truck & Bus Output (Weekly)	units	130,873	133,357	103,365	1.8	+26.6
Petroleum Output (Daily Average)	000 bbls.	6,445	6,538	6,367	-1.4	+ 1.2

TRADE



	ACE	LATEST	MONTH	YEAR % OF CHANGE IN		
	BASE	LATEST	AGO	AGO	MONTH	YEAR
Dept. Stores Sales Index (Fed. Res.)	1935-39	=100 100	92	100	+ 8.7	0
Commercial Failures (Dun & Bradstreet)		178	195	110	-8.7	+61.8
Freight Carloadings		799,079	785,349	746,044	+1.7	+ 7.1
Miscellaneous Carloadings		383,518	375,509	348,790	+2.1	+ 9.9

PRICES



tc

10.7 4.4 18.7 4.0 26.6 1.2

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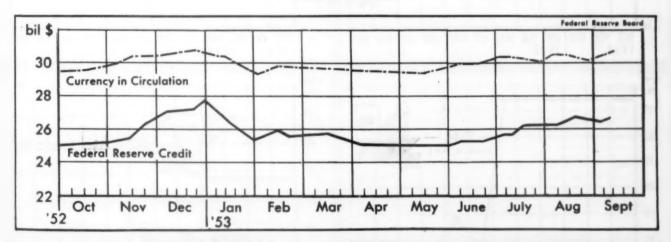
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0 61.8 7.1 9.9

	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHA	NGE IN YEAR
All Commodities (BLS)	1947-49-10	0 110.6	110.9	112.2	- 0.3	- 1.4
Farm Products			97.9	109.9	- 1.6	- 12.4
Metals & Metal Products	1947-49=10	0 129.3	129.3	124.1	0	+ 4.2
Structural Products	1947-49=10	0 119.6	119.4	113.8	+ 0.2	+ 13.5
Steel Billets (Pittsburgh)	net ton	\$62.00	\$62.00	\$59.00	0	+ 5.0
Steel Scrap, heavy melting, Pitts	net ton	40.50	48.00	43.00	- 14.7	- 5.7
Copper, electrolytic	lb.	.29	$30 .28\frac{1}{2}30$.241/2	+ 1.7	+ 17.3
Rubber (rib-smoked sheets)	lb.	$.23\frac{3}{8}$.233/8	.271/2		-15.0

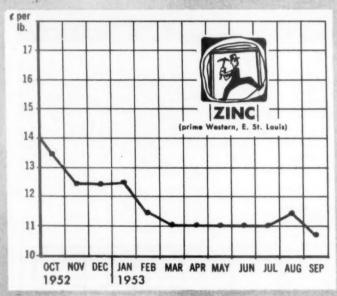
FINANCE

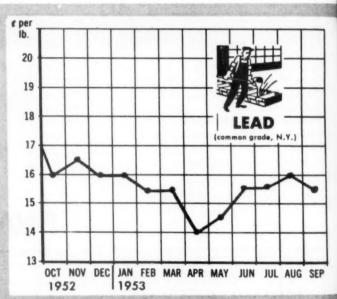


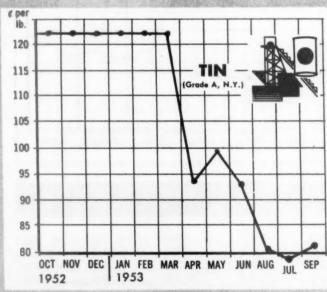
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CH	IANGE IN YEAR
Stock Prices (Standard & Poor's)	mil \$ mil \$	185.9 9,455 26,464 30,335	196.4 7,763 26,352 30,158	196.1 10,281 25,249 29,292	-5.3 + 21.7 + 0.4 + 0.5	- 5.2 - 8.0 + 0.8 + 4.5

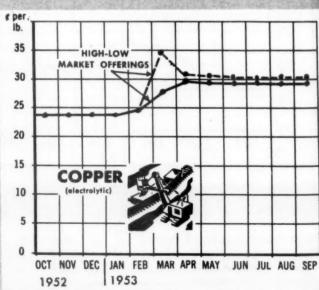
Approaching Buyer's Market Keeps Prices on Soft Side

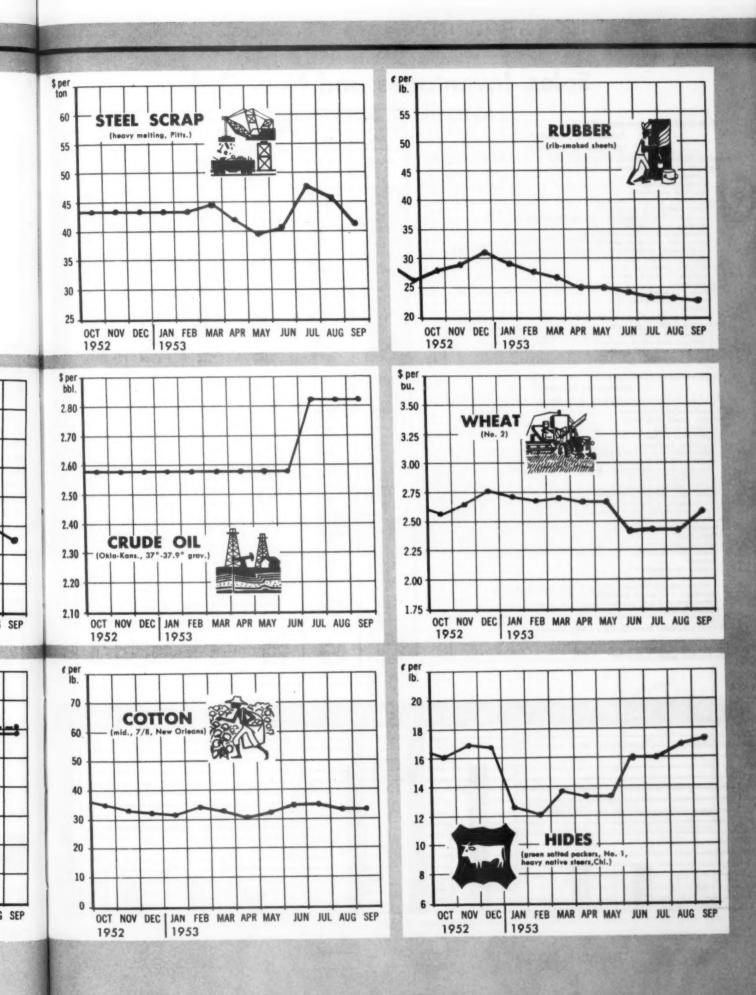
More closely controlled buying policies, slackening demand all along the line for a variety of materials, and a general expectation of some type of business slowdown have been contributing to a widespread softness in prices. Premium steel producers are reported reducing prices to meet competition, and there is plenty of talk that freight absorption by the steel industry is on the way back. Scrap steel, zinc, and lead prices have slumped, and no great revival of strength is expected in any one. Despite high production, crude oil prices are holding, but there have been a number of gasoline price cuts at the retail level.







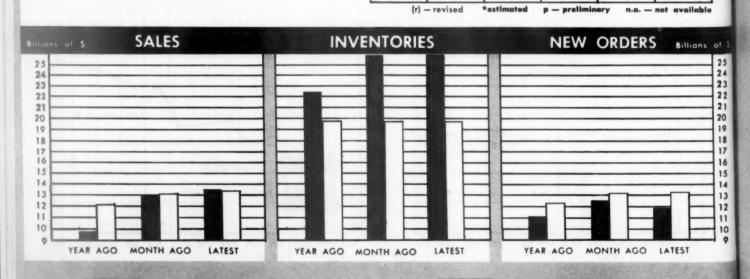




THE PULSE OF BUSINESS

Sales, Inventories and New Orders

Value of Manufacturers' Sales	1952			1953		
Seasonally Adjusted	July	March	April	May (r)	June (r)	July (p)
(Millions of Dollars)						
All Manufacturing industries	21,858	25,469	26,838	26,226	26,172	26,721
Durable goods industries	9,777	12,821	13,490	13,238	13,046	13,448
Primary metals	1,113	2,150	2,296	2,258	2,172	2,354
Fabricated metals	1,184	1,446	1,589	1,507	1,457	1,545
Electrical machinery	1,106	1,347	1,316	1,361	1,478	1,367
Machinery (except electrical)	1,942	2,137	2,224	2,097	2,089	2,076
Motor vehicles & equipment		2,241	2,344	2,311	2,255	2,256
Transportation equipment (exc. motor vehicles)	1,167	786	878	885	816	958
Furniture and fixtures		361	373	377	367	361
Lumber products (exc. furniture)	377	717	800	745	752	786
Stone, clay and glass products	621	585	538	590	597	596
Professional, scientific instruments	497	331	365	370		
Other industries, Incl. ordnance	302	719	766	738	353	414
Nendurable goods industries	678	12,648	13,348	12,988	710	735
Food and kindred products	12,081	3,480	3,674	3,572	13,126	13,273
Beverages	3,267	570	576	600	3,453	3,656
Tobacco products	609	325	327	308	671	705
Textile-mill products	325	1,127	1,345	1,242	318	323
Apparel	1,162	1,036	1,176	1,174	1,185	1,225
Leather and products	1,174	292	299	301	1,182	1,197
Paper and allied products	267	718	720	708	355	342
Printing and publishing	650	754	782	770	734	768
Chemicals and allied products	704	1.767	1,808	1,781	738	712
Petroleum and coal products	1,560	510	2,146	2,061	1,734	1,743
Rubber products	1,956	310	496	472	2,268	2,115
Rooder products			470	7/2		
Book value of Manufacturers' Inventories						
Seasonally Adjusted			1			
(Millions of Dollars)						
All Manufacturing Industries	42,748	44,056	44,574	44,970	45,525	45,670
Durable goods industries	22,962	24,746	25,122	25,420	25,775	25,925
Primary metals	2,928	3,070	3,083	3,132	3,175	3,234
Fabricated metals	2,235	2,446	2,507	2,573	2,694	2,756
Electrical Machinery	3,052	3,200	3,302	3,382	3,419	3,466
Machinery (exc. electrical)	5,314	5,482	5,514	5,514	5,529	5,521
Motor vehicles & equipment	2,517	3,139	3,265	3,313	3,338	3,320
Transportation equipment (exc. motor vehicles)	2,248	2,643	2,661	2,635	2,701	2,729
Furniture and fixtures	555	544	534	554	569	585
Lumber products (exc. furniture)	1,005	1,092	1,086	1,089	1,094	1,085
Stone, clay and glass products	922	900	920	935	953	939
Professional, scientific instruments	757	794	799	807	818	808
Other industries, incl. ordnance	1,420	1,438	1,451	1,486	1,486	1,481
Mondurable goods industries	19,786	19,309	19,452	19,550	19,750	19,745
Food and kindred products	3,485	3,275	3,241	3,198	3,147	3,065
Reverages	1,289	1,198	1,190	1,184	1,183	1,130
Tobacco products	1,724	1,731	1,750	1,766	1,759	1,782
Textile-mill* products	2.764	2,597	2,648	2,671	2,762	2,790
Apparel	1,685	1,674	1,678	1,672	1,697	1,801
Leather and products	554	553	572	604	624	588
Paper and allied products	1,007	990	998	987	976	942
Printing and publishing	715	755	755	736	750	723
	2,995	2,907	2,969	3,005	3,122	3,166
		2,726	2,726	2,803	2,789	2,817
Chemicals and alled products	2.683					
	2,683 884	903	925	924	942	n.e.
Chemicals and allied products Patroloum and coal products Rubber products		903	925	924	942	n.g.
Chemicals and allied products Patroloum and coal products Rubber products Manufacturers' New Orders (Adjusted)	884					
Chemicals and allied products Patroloum and coal products Rubber products Manufacturers' New Orders (Adjusted) All Manufacturing industries	23,434	24,591	25,708	25,606	25,553	25,168
Chemicals and allied products Patroloum and coal products Rubber products Manufacturers' New Orders (Adjusted)	884					25,168 11,921 13,247



NON-DURABLE GOODS

DURABLE GOODS

Economic Indicators



70 60 CIVILIAN LABOR FORCE NON-AGRICULTURAL 40 30

Today, more people have jobs in America than ever before in our history. Employment records show figure of nearly 631/2 millions.

1951

1952

1953

20

10

25

23

22 21

16 15

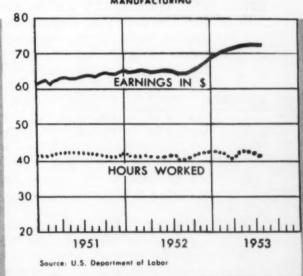
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12 11 10 1949

1950

Source: Bureau of the Census

AVERAGE WEEKLY EARNINGS AND HOURS MANUFACTURING



Average wages have remained steady at record level with greatest income gains reflected in defense-related ordnance and primary metals.

PERSONAL INCOME

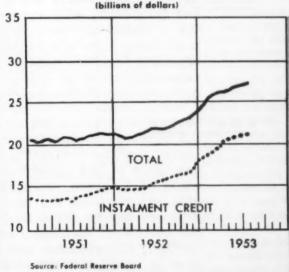
(billions of dollars)



Personal income heading for record of 288 billions for 1953. Private industry payrolls show \$11/2 billions increase over previous month.

CONSUMER CREDIT

(billions of dollars)



Instalment credit has reached 4.3 million over last year. All types of credit showed gains but auto credit still shows biggest gains.

Straws in the Trade Wind

- STEEL STILL POURING OUT When steel production hit a new record high for the month of August it also rounded out its greatest 12 months in history, reports the American Iron & Steel Institute. Output for the year ending August 31 was 114.6 million tons, compared with 107 million tons the year previous.
- ALUMINUM DEMAND TO DECLINE Some lessing in demand for aluminum probably will develop after the first of next year, says R.S. Reynolds, president of Reynolds Metals Co. All the country's aluminum producers, he predicted, will find they have "to get out and work in order to sell all the metal that can be turned out by the industry's present productive facilities."
- LOWER RUBBER COSTS COMING? A U.S. Rubber Co. scientist has reported on a process said to enable a specially designed plant to produce synthetic rubber at much lower costs than at the government's own plants. The quality of products manufactured from the rubber would be improved, he said.
- creased 19,967 tons in the first eight months of 1953, according to the Copper Institute. Stocks in foreign producing countries in the same period rose by 79,117 tons.

 U.S. stocks were the highest since 1949, and foreign-held tonnage was at a peak for the postwar period.
- BATTLE OF THE GIANTS The two great automotive competitors, Ford and Chevrolet, will apparently continue to battle it out for a number of years to come. Ray Sullivan, Ford vice-president, says his company expects to have a productive capacity for Ford cars "equal or better than Chevrolet's capacity" by early 1955. And, he said, there has been no brake put on Ford's heavy expansion plans for all its plants.
- A ROSY OUTLOOK In the midst of a certain amount of pessimism about business prospects for 1954, at least one industry leader has the rosiest kind of outlook. J.W. Keener, vice-president of B.F. Goodrich Company, predicts that in terms of the usual economic measurements, this country will enjoy one of its most prosperous years in history. Business may be off 6 to 10 per cent from 1953, he says, but even with that new records should be set in the production, distribution and consumption of consumer non-durable goods and services.

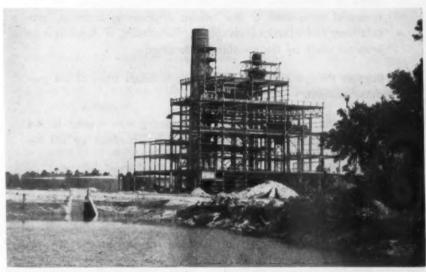
Toward Better Specifications

By Louis Occhetti, Jr.

WITH each passing year, engineers are according greater emphasis to the preparation of good equipment specifications—a subject which inherently merits the attention it receives. It is the two-fold purpose of this paper to examine the underlying reasons that make this subject deserving of prominence in the scheme of things that comprise a whole engineering endeavor, and to offer a few observations with respect to preparation and presentation of equipment specifications.

In every type of major construction project involving the application of machinery and equipment—be it a chemical or industrial plant, a ship or a commercial structure—care

THE AUTHOR is currently associated with the firm of Singmaster & Bryer, New York, chemical engineers and metallurgists, as Administrative Engineer. He acquired his technical training at the U.S. Naval Academy and the University of Michigan, and holds degrees in Mechanical Engineering, Naval Architecture and Marine Engineering. He is a member of the National Society of Professional Engineers and the Society of Naval Architects and Marine Engineers. His extensive commercial experience includes ten years as head of procurement and in charge of material and equipment specifications for many large shipbuilding projects, in the course of which he contributed substantially in setting up procurement cycles and organizations for the U. S. Maritime Commission and the Navy.



The equipment specification stage occurs early in any major engineering project, to assure that facilities will be exactly as wanted and that work on the project may proceed to schedule.

must be exercised in the selection of machinery, equipment and materials to insure their adequacy for the intended service, equally from the standpoint of performance as well as safety and economy. The process employed in the determination and actual attainment of adequacy originates with the development of basic design and specifications; it grows progressively through the subsequent functions of procurement, vendor's plan approval, shop inspection and tests, and attains maturity in the final proving ground of actual operating tests conducted after installation, and thereafter in service.

From Design to Procurement

It is significant that the above mentioned series of events is common to all engineering projects—basic design, specifications, procurement, preparation of construction drawings, and actual construction. The early occurrence of the specification function in the chronological order of this series of events ac-

centuates its relative importance to the successful completion of the project.

More particularly, the specification function bridges the span between basic design and procurement. As such, it vitalizes the chain of events emanating in the flow of vendor's drawings so necessary in the development of specific construction drawings, the timely completion of which, in turn, materially influences construction progress.

The technical basis of the purchase contract, against which the equipment sought is finally delivered, is lodged in the specification. In this respect, the specification is the fundamental vehicle in converting engineering concept to commercial reality.

By examining what occurs at each link in the design-specification-procurement chain, the nature of the interrelationship among these elements becomes apparent:

 The basic design stage evolves a concept in terms of sketches, symbols and numbers.

N. Y.

Four Reasons for Systematically Developing Better Specifications

- 1. Because the process employed in obtaining adequate equipment and facilities has its origin in specifications.
- 2. Because of the early occurrence of the specification phase in the series of operations common to every major project, so that successful completion of the related engineering activities, procurement, and actual construction or installation, is dependent on progress mode by the specification function.
- 3. Because the specification provides the technical basis of the purchase contract.
- 4. Because the opinion formulated by industry with respect to the professional calibre of the engineering is influenced by the impression initially conveyed by the specification.

2. In the specification stage, the physical and performance features are extracted from the concept form and converted to a written statement of equipment requirements; for the specification is the engineer's means of conveying what is wanted to those who must buy and supply the equipment.

3. It is the function of procurement to circularize the specifications, obtain prices, and eventually place the order. (As a matter of good procedure, prior to making an award, the procurement activity refers the quotations to the specification source for technical analysis, to ascertain that the proposed equipment conforms to specifications and, in essence, fulfills the requirements of the fundamental sketch-symbol-number concept.

While the interrelationship among these phases is worthy of considerable amplification, this condensed summary serves to emphasize the importance of teamwork as well as the impelling need for careful coordination and administrative control of the entire process. Further, with a view to maintaining order and avoiding duplication of effort among the respective functions, it is important that a clear procedure and simple flow chart be developed at the very outset of the project. In this way, an orderly flow of information is assured, and respons-

ibilities are coupled with proper authority. These factors account to a large extent for the organizational attention focussed upon the specification function as one of the basic elements that combine to form the major process.

Clarity Is Essential

This examination of the reasons justifying special interest in the subject of specifications would be incomplete without acknowledging that the opinion formed by manufacturers, builders, and clients, with respect to the professional calibre of the engineering, is influenced by the impression initially conveyed by specifications. No other characteristic of specifications reflects more intensively the thoroughness of the engineer than does the single element of clarity.

In consideration of those who are to work with and understand the specifications, technical requirements must be expressed in terminology which unmistakably conveys one and the same meaning to all. To realize this objective in technical presentation, it follows that technical knowledge coupled with skill in accurate expression are the major prerequisite qualifications of those assigned to the preparation of specifications.

Experience has established that well written specifications, released

under a properly coordinated program, can spell the difference between an orderly, economical engineering project and a chaotic conundrum disrupting schedules, plaguing the engineer, purchaser, vendor, builder, and owner, and, likely as not, erupting in litigation. The role played by specifications, independently of such extremes, explains the attention accorded the subject, as well as the increasing trend toward better specifications.

Segregate Non-Technical

While the physical form, extent and treatment of details, and other aspects of specification presentation are influenced by the nature of each particular project, nevertheless the fundamental considerations in preparing good equipment specifications remain the same. The balance of this paper is concerned with these fundamentals, and is offered primarily in the interest of improving, rather than perfecting, specification presentation.

To reiterate what has been previously implied, it is important that those preparing equipment specifications recognize that specifications are created primarily as a means of setting forth the technical aspects of desired equipment, such as size, loads, duty, performance, materials, and related characteristics, including safety. As such, the specification ought not to be burdened with cumbersome general clauses which, while contractually necessary, are primarily concerned with non-engineering or semi-technical aspects.

In the interest of brevity and clarity, it is advisable to segregate these clauses from the purely technical aspects, standardize and consolidate them into a separate Appendix, and incorporate the Appendix in the specification by reference. This Appendix should be drafted at the very outset of the project, when the coordination procedures are established.

Since the material treated in this Appendix is closely allied to the usual "fine print" provisions included in the purchase contract, it is only prudent that it be formulated in collaboration with the purchasing activity and legal advisers. The Appendix should include requirements for guarantee, packing and protecting during shipment, procedures for submittals and approvals of vendor's plans, instruction books, material

substitutions, shop inspection and tests, and related requirements.

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In those limited cases where circumstances require that exceptions be taken to standard clauses, such exceptions may be highlighted in an appropriate section of the specification, as will be seen in what follows. Having isolated all material of a standard clause nature from direct inclusion in the technical specification, the content of the specification proper will be devoted exclusively to engineering considerations, and the cause of brevity and clarity is well served.

After the required technical data has been assembled, the course to be followed in all specification presentation can be plotted readily by making an examination of the subject and preparing an outline. In most instances, the subject matter of equipment specifications can be presented in three major sections, as follows, logically arranged and assembled with a functional cover sheet.

Upon close examination of the nature of material to be presented under each major section, the necessary subtitles become apparent, and the detailed outline can easily be finalized. The following discussion illustrates the effectiveness of this approach.

I. Material Required

The section dealing with Material Required should be considered strictly a summarization of what is wanted. It presupposes that further technical detail will be presented adequately in the balance of the specification. Specifically, this section will contain quantity identification, and a limiting description of each item included.

Often the standard of intended quality is incorporated in this description by simple reference to an acceptable model and type equipment of a well known manufacturer—or equal. When properly phrased, this limiting description lends itself to direct transfer to the Purchase Order with little, if any, revision.

Generally it is advisable to itemize separately major equipment components and spares.

It is good practice to show supervision of installation as a distinct item.

Where there exists any likelihood or doubt that associated equipment is to be included or excluded, a statement of what is not included should follow the above.

Recommended Approach for Simplifying Preparation and Improving Presentation of Equipment Specifications

- Insofar as possible, confine the actual specification text to technical matters, treating non-engineering or semi-technical aspects in an Appendix.
- 2. Gather all technical facts preparatory to actual writing.
- 3. Prepare a logical outline in standard skeleton form, and later expand the outline as required to cover any additional features.
- 4. Present the technical requirements systematically under the appropriate outline topics, so that each successive topic accomplishes a specific purpose in leading the reader to understand precisely what is wanted.
- 5. Adopt a neat, functional cover sheet, and accord attention to other matters of physical appearance, including assembly, page numbering, and legibility of reproduction copies.

II. Technical Requirements

The section concerned with Technical Requirements can be presented in a few subsections, the number depending upon the nature of the equipment treated. For instance, the Technical Requirements for an electrically driven mechanism may be presented adequately according to the following elementary outline.

A. Description:

This description is to function as a main introduction, focussing the attention of the reader upon the technical aspects and particularly upon special considerations. Accordingly, this description should state the manner in which the equipment must function with respect to the system of which it is a part, the nature of the service, physical location, dimensional limitations and other restrictions or special features about which the reader must be immediately informed. In effect, this subsection states the application and forecasts the degree of dependability sought.

B. Mechanical:

Under this heading, the desired mechanical features should be described with individual treatment directed to topics such as materials, construction, loads, duty, and performance. It is well to segregate and treat major equipment components separately, being non-re-

strictive with respect to methods of providing the desired features where there is obvious choice.

C. Electrical:

Material under this heading should set forth the class, service and rating of all electrical equipment and identify governing codes. It should, in addition, describe available power, enclosure and type of motors, starting equipment and controls, and any special protective or safety features.

D. Tests:

It is desirable that any special tests be described in this subsection.

Where other technical requirements, such as special cleaning or painting, are important, as is often the case, the basic outline set forth above should be expanded to permit individual treatment of such topics.

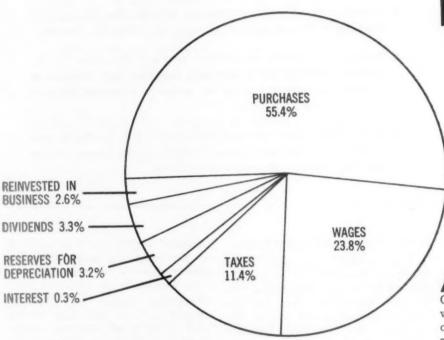
III. General Requirements

The section devoted to General Requirements should contain a statement with regard to the applicability of the Appendix previously discussed, as well as any exceptions to the standard clauses. This section is the appropriate place to include statements amplifying or emphasizing important semi-technical aspects which are the direct concern of the engineer.

(Please turn to page 356)

PURCHASING Plays the

LEADING ROLE



Distribution of the Sales Dollar in 77 Largest Manufacturing Companies

Disposition of Income by the 100 U. S. Corporations Reporting Largest Sales Revenue in 1952

	77 Mfg.	15 Trade	6 Rail-	2 Public	100 Cos.
	Cos.	Cos.	roads	Utilities	Total
Total receipts from sales and services (\$ million)	\$76,921	\$16,362	\$4,245	\$4,475	\$102,003
Costs of goods and services purchased from others Wages, salaries, and labor	55.4%	80.1%	23.4%	16.1%	56.3%
benefits	23.8	13.1	50.6	43.1	24.1
Federal income and excess profits taxes Other taxes Interest paid Reserves for depreciation	5.9	2.6	5.0	9.7	5.5
	5.5	1.2	5.9	8.4	5.0
	0.3	0.1	3.0	3.0	0.5
	3.2	0.7	4.9	9.3	3.1
Total costs of operation	94.1	97.8	92.8	89.6	94.5
Net income	5.9	2.2	7.2	10.4	5.5
Dividends paid	100.0	100.0	100.0	100.0	100.0
	3.3	1.4	2.7	8.0	3.1
	2.6	0.8	4.5	2.4	2.4

N interesting and significant Astudy made by the National City Bank of New York analyzes what happens to the income dollar of the 100 largest U.S. corporations, all of which reported sales revenue of \$1 million or more per day during 1952. The figures ranged all the way from Standard Brands' \$383 million annual sales to the \$7,645 million income of General Motors Corporation. Twenty-eight of the corporations had receipts in excess of \$1 billion for the year, and the total for the 100 companies amounted to more than \$102 billion. The list included 77 manufacturing companies in a wide variety of industries, 15 trade or merchandising organizations, 6 railroads, and 2 public utilities.

The compilation emphatically confirms the importance of the purchasing department's function in modern industry by showing that substantially more than half of the total sales income is expended for "goods and services purchased from others"—a sum more than twice as great as wages, salaries, and labor benefits, ten times as great as all tax levies, and larger than all other expenses and profits combined. If purchasing men have been unaware of the full scope of their responsibility, or if management has been slow

These 100 Largest American Corporations All Reported Sales of A Million Dollars or More Per Day For The Year 1952*

(Total year's sales or revenue reported in \$ millions)

MANUFACTURING		MANUFACTURING	
Ceneral Motors Corp. Standard Oil Co. (N.J.) U. S. Steel Corp. General Electric Co. Chrysler Corp. Swift & Co.	7,645 4,157 3,137 2,652 2,609 2,597	Continental Can Co. Caterpillar Tractor Co. Kennecott Copper Corp. Amer. Smelt. & Ref. Co. Nat. Dist. Prod. Corp.	480 478 477 476 470
Armour & Co. Bethlehem Steel Corp. Socony-Vacuum Oil Co. Standard Oil Co. (Ind.)	2,185 1,702 1,622 1,617	General Mills, Inc. Inland Steel Co. American Metal Co. Lockheed Aircraft Corp. Youngstown S. & T. Co.	469 460 453 440 440
E. I. du Pont de Nem. & Co Texas Company Gulf Oil Corp. Westinghouse Elec. Corp. Western Electric Co.	1,613 1,588 1,539 1,463 1,319	Tide Water Assoc. Oil Co Schenley Industries Ralston Purina Co. Dow Chemical Co. Republic Aviation Corp.	429 426 420 414 412
International Harvester Co	1,215 1,145 1,143 1,143 1,087	Pitts. Plate Glass Co. Continental Oil Co. Sperry Corp. Con. Vultee Aircraft Cp. J. P. Stevens & Co. Deere & Co.	407 399 396 391 387 385
American Tobacco Co. Union Carbide & Carb, Co. Firestone Tire & Rub. Co. Republic Steel Corp. Cities Service Co.	1,067 979 969 925 909	Standard Brands, Inc	383
R. J. Reynolds Tob. Co Sinclair Oil Corp. U. S. Rubber Co. Wilson & Co. Procter & Gamble Co	881 856 853 827 818	Great A & P Tea Co. Sears, Roebuck & Co. Safeway Stores Montgomery Ward & Co. J. C. Penney Co. Kroger Company	3,756 2,937 1,639 1,085 1,079 1,052
Borden Company Dist. Corp. — Seagrams Boeing Airplane Co. Phillips Petroleum Corp. General Foods Corp.	770 742 740 723 701	Anderson, Clayton & Co F. W. Woolworth Co. American Stores Co. Allied Stores Corp.	893 713 542 502
Radio Corp. of America	694 668 634 627 622	May Dept. Stores Co. Federated Dept. Stores McKesson & Robbins First National Stores National Tea Co.	449 448 437 425 406
Sun Oil Company Atlantic Refining Co	617 613 604	TRANSPORTATION	
Studebaker Corp. Aluminum Co. of America Eastman Kødak Co. Cudahy Packing Co. National Steel Corp. Armco Steel Corp. Douglas Aircraft Co.	586 584 575 563 553 524	Pennsylvania R. R. N. Y. Central R. R. Southern Pacific Co. Atch., Topeka & S. F. Union Pacific R. R. Balt. & Ohio R. R.	1,065 903 700 605 520 452
Allis-Chalmers Mfg. Co. Bendix Aviation Corp. Allied Chem. & Dye Corp.	510 497	PUBLIC UTILITY	4.040
Jones & Laughlin Stl. Cp	497	Amer, Tel, & Tel, Co Con. Ed. Co. of N.Y	4,040 435

*Ford Motor Company not included in table; no sales figures published.

to recognize the basic importance of the purchasing activities in their operations, this study should establish these facts beyond all question.

In the manufacturing group of 77 companies, purchases represented 55.4 cents of every dollar of income. Wage and salary expenses took 23.8 cents. The tax bill amounted to 11.4 cents, slightly more than half of which went for federal income and excess profits taxes, the balance being in other federal, state, local, and foreign taxes. Reserves for depreciation and depletion amounted to 3.2 cents, with another 0.3 cents paid in interest on borrowed capital. This leaves a net income of 5.9 cents out of every dollar received, of which 2.6 cents was reinvested in the business and 3.3 cents paid out in preferred and common dividends.

The distribution of income for the entire list corresponds closely to these figures, due to the preponderant dollar volume represented by

the manufacturing group.

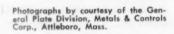
In the mercantile group of 15 companies, where purchases are made chiefly for resale merchandise, the purchase figure is obviously high-80.1 cents of every dollar. Wages, taxes, and requirements for reserves are relatively low. Net income and dividends are also low in relation to dollar activity.

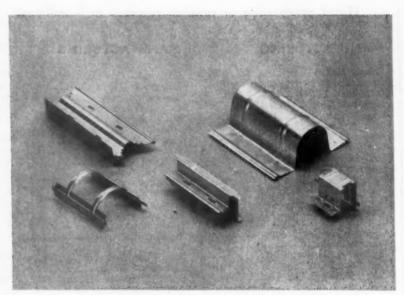
Among the railroads and public utilities, where sales income is derived chiefly from services, purchases are relatively low and are exceeded by costs of labor and administration, which are high. Use of borrowed funds for working capital is reflected in substantial interest payments. The "tax bite" on utilities amounts to 18.1 cents of every revenue dollar-a sum greater than purchases (16.1). The large capital investment in plant and equipment in the utility industry is indicated by depreciation reserve requirements almost three times as great as in manufacturing industry, and by a high dividend rate in relation to current income (though not on net worth).

The important point, however, which is graphically brought out in this composite operating statement is the basic and dominant role of purchasing in industry today, whether it be aircraft, appliances, automotive, chemical, electrical, farm equipment, food, machinery, paper, power, rubber, soap, steel, tobacco, transport, or what-haveyou. Purchasing directors and management executives, take no-

Clad Metals for Industry

By Lyne S. Metcalf





Typical parts fabricated of aluminum clad steel.

FTALS are among the most vitally important industrial materials, being used in over half of all industrial production. It is natural, therefore, that science and research have directed so much experiment and study to the nature of metals and also to their adaptation to the many specialized uses demanded by modern industry.

An example of this study and adaptation is found in the advances made in recent years in the production of composite metals—the combination of two or more metals or alloys into a single sheet or other form for fabrication, as distinguished from plating or deposition after forming.

This field of technology had its origin primarily in supplying special needs of the jewelry and allied industries—"cladding" of gold and gold alloys to base metals for this trade. In time, these techniques were extended to include cladding silver, platinum, and other precious metals and their alloys to base metals, largely for the electrical and chemical fields.

All this early experimentation and experience has led in turn to further successful research into the development of combinations not

necessarily involving the precious metals, but to take advantage of varying metal characteristics. This is typified by the development of copper-clad aluminum, copper-clad spring steel (hardenable steel), and other base metal combinations. Some of the first composite base metals in common use were the thermostat metals, where one base metal was bonded to another to produce a sheet or disc having different rates of expansion on the two surfaces. This accomplished, it was natural that other base metals should be successfully and usefully bonded to-

As a result of this development, a considerable variety of composite metals is now available to all industries dependent upon metals for specialized purposes. Production of these composite metals is serving ever-widening fields, and they are supplied in many needed formsin strip, sheet, wire, and tubing, and in many sizes and tolerances. Also, leading developers and producers of composites place at the disposal of metal using industries an engineering and metallurgical advisory service designed to solve many of the metals problems of individual manufacturers.

Perhaps the impetus was given to this important technology by certain metal shortages and high costs; also, to some extent, by the growing need for scientifically correct metal parts and assemblies in so many lines of manufacture. Then too, sometimes, in combination, two or more metals may develop characteristics which are not available at all in any single metal, as in the case of the thermostat combinations.

Advantages of Cladding

Thus, the distinctive qualities and properties of metal composites give the user definite advantages. For example:

- a. Special combinations of physical properties.
 - b. Greater strength.
 - c. Decreased weight.
- d. Improved fabricating characteristics.
- e. Lower cost.

These and other advantages can accrue in the case of industries where a high degree of performance is essential.

There is also the always important economy factor, which is effected in several ways.

In many instances, the use of composite metals lowers the ma-

terial cost where precious metals are necessary on a surface or contact point. This results from the use of a relatively thin layer of the precious metal clad on a base metal which is low in cost.

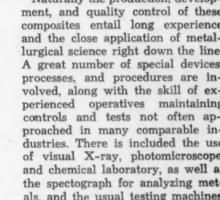
als in work. After brazing, the bonded ingot is put through a series of cold-rolling and annealing operations to secure the desired gauge and temper.

In the case of solid bonding, the

Procedures for fabricating composite metals vary, depending on the particular combinations involved. Blanking, forming, spinning, drawing, and other common operations usually can be safely performed on clad metals, though some experimental work may be necessary so that conditions of stress and strain are known in the final application. At present, metal-dependent in-

dustries can get composite sheet, strip, wire, and round, rectangular or special shaped tubing in a wide variety of dimensions and to close tolerances to meet their needs. The accompanying table lists some of the readily available combinations.

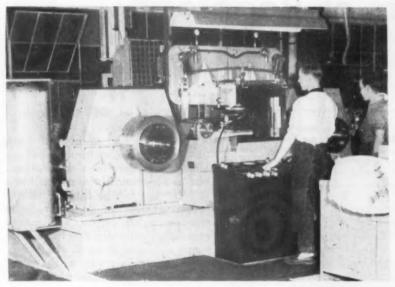
Naturally the production, development, and quality control of these composites entail long experience and the close application of metallurgical science right down the line. A great number of special devices, processes, and procedures are involved, along with the skill of experienced operatives maintaining controls and tests not often approached in many comparable industries. There is included the use of visual X-ray, photomicroscope, and chemical laboratory, as well as the spectograph for analyzing metals, and the usual testing machines.





Perhaps the most important operations are those devoted to the rolling and annealing of composite metals, where closer production control is necessary than in the processing of single metals.

The uses and applications of metal (Please turn to page 366)



Cluster mills for precision rolling of composite metals to .0005 tolerances.

In some instances, composite metals lower the cost by reducing the number of forming operations, or by eliminating the later assembly of two or more separately fabricated parts.

Then, composites can frequently be considered as an alternate or substitute material for the purpose of cost reduction. For example, copper-clad aluminum can replace solid copper or brass in many instances. The copper provides an ideal surface for soft-soldering operations, electroplating and other finishes. Such a substitution sometimes permits a material cost reduction of 15% to 30%, or even more.

Composite metals help to conserve limited supplies of critical materials by providing a thin layer of critical metal clad to a more readily available backing metal. Today's developments in this field are rapidly ex-

Production Methods

In bonding composites, there are two methods commonly used: (1) the liquid or semi-liquid method, and (2) solid bonding.

In the case of liquid bonding, a sheet of high temperature brazing alloy is interposed between the metmetals are bonded or welded directly by application of heat and pressure. The strength of the bond is as great or greater than the strength of the parent metals. In some cases, the metals are hotrolled to improve the bond and are finally cold-rolled to finished size.

Some Representative Composite Metals Readily Available to the Buyer

Aluminum, clad with copper on one or both sides.

Aluminum, clad with silver on one or both sides.

Aluminum clad on both sides of low carbon steel.

Nickel clad on both sides of low carbon steel.

Low carbon steel with aluminum clad on one side and nickel on the other.

Copper with phosphor bronze clad on both sides.

Shim material with silver brazing alloy clad on both sides.

Copper clad on one or both sides of low carbon steel, stainless steel, or spring steel.

Brass, monel, and other metals clad on steel.

Copper clad on magnesium.

Fine silver clad on one or both sides of beryllium copper.

Dangers of Reciprocity

By Huey G. Huhn

P URCHASING, selling, advertising and traffic management are specialized business functions, each of which is capable of making a substantial contribution to efficient and profitable company operation on its own merits. Reciprocity is a policy, which may become an operation in itself. It usually gets tied in with one or all of the above mentioned functions, but it has no natural fit in any one of them.

relative Reciprocity's closest would be direct barter and exchange. Here at least some sort of equity is within reach. Both are, in reality, "back scratching" practices. In barter and exchange operations the area of itch can be blueprinted and the amount of scratch specified. But reciprocity is quite likely to get out of control. There are no lasting good effects to either buyer or seller when the exchange of goods or services pivots on reciprocity as the determining factor.

Consider the position of the salesman who has had a taste of obtaining business because of "orders from the top" rather than through his own efforts. He is inclined to lean heavily on this one argument in all solicitations because it works in one case, overriding all other considerations. His sales ability and initiative deteriorate and he becomes less effective where straight competitive selling alone will produce orders. Usually he loses far more by default than he gains by reciprocity, for there is a definite limit to the patronage his company can offer as its part of the exchange-and it is the customers or prospects beyond the scope of the reciprocal arrangement upon whom his company must depend for ultimate profits.

Furthermore, where reciprocity is accepted as a buying factor, he does not stand alone. Sometimes reciprocity forces a buyer to split orders or to buy on the basis of An increasingly competitive business situation is reviving the pressures for reciprocity in selling and buying. Think this policy through before committing your company to adopt or accept it.

"Whose turn is it?" Then the salesman and his firm have no way of knowing whether or not they would have fared better, orderwise, had the approach rested solely on the normal quality-price-delivery basis. Reciprocity can be and frequently is very misleading, and those who put this tool into their operations kit may be the very ones who suffer most from its use, even though they may not know it.

There are internal complications, too. Reciprocity inevitably resolves itself into a matter of individual accounts, and this situation can hardly be kept a secret from other salesmen in the organization who have no opportunity to benefit from similar windfalls. So, when reciprocity sales reach any substantial proportions, the firm usually does one of two things: the commission rate on such sales may be arbitrarily reduced, or the reciprocity customer is listed as a "house account". And on what logical basis can the salesman complain?

The purchasing agent too is adversely affected when reciprocity puts in an appearance. Sound purchasing principles and judgment go out the window. Frequently he must lower his professional ethical standards to make it possible for the reciprocity seller to get in line on price quotations. Sometimes he may be obliged to close his eyes to the quality of what is offered, as compared with offers of other vendors. He may be pretty sure, though perhaps he cannot prove it, that the reciprocity seller-and also the supplier who has no reciprocity to back him up-will soon refrain from giving him their best offers. This cer-

tainly does not help his purchasing performance.

The purchasing agent sometimes has pressure for reciprocity put on him from his own sales organization, but he sometimes brings it on himself. He may not be frank in telling salesmen why he does not favor them with his orders, and makes excuses that do not ring true. The losing salesman is quick and sensitive to smell reciprocity as the cause of his failure, and digs up a bit of pressure of his own to overcome it. Thus the buyer is faced with a dilemma of his own making.

Since the purchasing agent dislikes buying under the pressure of reciprocity, he should not start such procedure with successful vendors, whatever his own sales department may urge. It simply isn't possiblefor a business to buy one way and sell in another.

If those who are in a position to exert reciprocity influence will go no farther than to ask that their goods and services be given full consideration on their merits of quality, price, delivery, and service—which is an altogether reasonable request—the prospective buyer will generally agree to do so. Sales relationships established on this basis are sound, and they will stick as long as there is business to be had and as long as the company maintains its efficiency and competitive standing.

More and more of our successful companies are realizing that if they will not use reciprocity in selling, they will be better able to resist it in buying. They know that salesmanship, purchasing, advertising, and traffic management are specialized functions and operations, coordinated and working for the common good of the company. And they know that the company's success can best be achieved when all these departments stand on their own feet, not on some one else's toes.

JUST PUBLISHED

Contains the latest information on Caustic Soda in 64 factual pages of illustrations, charts, tables, diagrams. Includes comprehensive data on methods of analysis, shipping, handling, storage and unloading.

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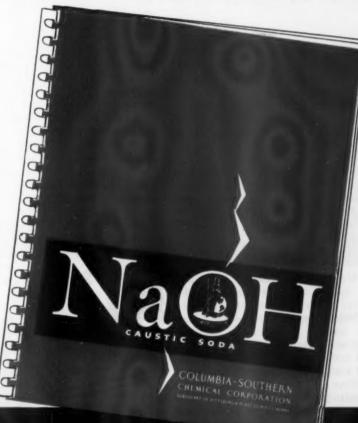


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Be Sure That The Law Is On Your Side

By Leo T. Parker

WERY buyer is confronted daily with legal problems. The ability of purchasers to solve correctly these legal problems frequently will result in the saving of many thousands of dollars. During the past few months the higher courts in different localities rendered important decisions especially adaptable to assist buyers to avoid legal controversies. Obviously these late citations may be advantageously utilized by purchasers and lawyers to win favorable verdicts in all law suits. We shall briefly review these cases.

Unusual Contracts

First, it is important to know that the courts will not interfere with buyers and sellers who make unusual or foolish contracts. A review of late and leading higher court decisions fully and clearly disclose these facts: If a contract is not unlawful no court will read into the contract any word, sentence or clause for the purpose of protecting either a buyer or seller against impossibility of performance, or a foolish obligation.

In Lumb v. Wood, 256 N. Y. 92, the higher court said:

"There is no policy which prevents adult persons of sound mind making such agreements as they please."

Another important point of law is: Failure of either a buyer, seller, or other person having a lawful interest in merchandise, to comply with the United States Statutes, United States Constitution, a State's Statutes or Constitution, or County or City ordinance, invariably results in an adverse verdict. Hence, one may have considerable confidence in winning a contemplated law suit and yet lose the suit upon introduction and presentation before the court of a law unfavorable to a particular litigant.

This point of law is exemplified by a decision rendered by the higher court in the leading case of Nichols v. Bogda, 77 N. E. (2d) 905. Here the testimony showed facts, as follows:

A bank loaned \$1,036.68 on equipment and took a chattel mortgage which was duly filed for record in the proper office of the county in which the equipment was located. Two months later the borrower sold it to a purchaser named Bogda, for \$1,235.

THIS CONTRACT IS
SO SILLY IT WILL
NEVER STAND UP
IN COURT

WE'RE BOTH
SOBER AND
OVER 21

THE LAW DOES NOT PROTECT
AGAINST FOOLISH AGREEMENTS

The bank sued Bogda to regain possession of the equipment because it held a mortgage lien of the equipment. During the trial Bogda proved that the bank had failed to follow a state law which provided that a notation must be made on the bill of sale by the mortgagee, or bank, that the equipment was mortgaged. The court held that the bank could not get possession of the equipment from Bogda, and said:

"The bank did not take the simple and inexpensive steps open to it under the law for its own protection and the protection of others."

Therefore, Bogda, the purchaser, won a suit that the counsel for the bank believed most certainly must be rendered in the bank's favor. The bank's failure to comply with the law requiring a notation to be made on the bill of sale showing that the equipment was mortgaged was the ultimate and positive reason the bank could not win the suit, notwithstanding it held a properly recorded mortgage which under ordinary circumstances would give it a first lien on the equipment.

Conditional Contract vs. Mortgage

According to a late higher court decision a state law which specifically relates to a conditional contract of sale also is applicable to a chattel mortgage. This implication by the court resulted in a purchaser winning a recent law suit, which otherwise he most certainly would have lost.

For example, in Sanders v. Seaboard, 230 Pac. (2d) 849, it was shown that a state law provides that a seller who sells merchandise or equipment on the installment payment plan, and takes a conditional contract, must set forth in the contract the following items:

(1) The cash price of the merchandise described in the conditional sale contract;

(2) the amount of the buyer's down payment, and whether made in cash or merchandise;

(3) the amount unpaid on the cash price;

(4) the cost to the buyer of any insurance, the premium for which is included in the contract balance;

(5) a description and itemization



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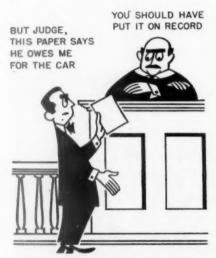
of amounts, if any, which will actually be paid by the seller to any officer as fees in connection with the transaction, which are included in the contract balance;

(6) the amount of the unpaid balance:

(7) the amount of the time price differential;

(8) the contract balance owed by the buyer to the seller;

(9) the number of installments required to pay the contract balance, the amount of each installment, and the date for payment of the installments.



STATE LAWS REQUIRE RECORDING OF LIENS TO MAKE THEM VALID

A seller sold certain equipment on the installment payment plan, but instead of signing a conditional sale contract, the seller took a chattel mortgage to secure payment of the balance due from the purchaser. Apparently the seller believed that the state law affected conditional contracts exclusively, and he failed to include in the chattel mortgage all of the above mentioned items and information.

The buyer failed to make the agreed monthly payments, and the seller foreclosed the mortgage, sold the equipment at public auction, and then sued the buyer deficiencies.

The higher court held the chattel mortgage void because the seller had not complied with the requirements of the above mentioned state law which referred exclusively to conditional contracts.

As the mortgage was void, the higher court held that the buyer could recover from the seller the down payment made when the contract and mortgage were signed, plus the installment amounts paid by the buyer, plus legal interest. This court said:

"The duty is the same where a seller takes a chattel mortgage as where he sells on a conditional sale contract."

Therefore, in this case the buyer won a favorable verdict because the seller did not know that the law which regulates conditional contracts also impliedly regulates chattel mortgages.

Law of Recording

Recently a higher court rendered an important decision to the effect that a mortgage not recorded strictly according to State Statutes is void, as to innocent purchasers.

The usual legal definition of a chattel mortgage is: A chattel mortgage is a legal instrument in which the owner or purchaser of merchandise, equipment or chattels transfers the title to a person or corporation as security for payment of money, the title to be retransferred to the owner or purchaser by his performance of the obligations specified in the mortgage.

The usual legal definition of a conditional sale contract is: It is an instrument under which the seller retains legal title to the chattels, merchandise or equipment until the purchaser fully meets his obligations.

The laws of all states provide that one who advances or loans or has money due on a chattel may perfect his lien by immediately recording either a chattel mortgage or conditional sale contract prepared according to the state's laws. However, a recording not made strictly according to the law always is void.

For example, in Pate v. Mac Company, 90 Atl. (2d) 460, the testimony showed facts as follows: One Berger purchased an automobile. He owed \$2,165 to the Mac Company and signed a conditional sale contract. This conditional sale contract was not recorded. Berger also signed a "Certificate" to the effect that he owed the Mac Company \$2,165. This "Certificate" was recorded by the Mac Company in the office of the City Clerk. Four months later one Pate, who knew nothing of the Mac Company's lien, purchased the automobile from Berger.

In subsequent litigation the higher court held that the "Certificate" recorded by the Mac Company did not validate its lien. In other words, this court decided that the lien held by the Mac Company was invalid, first, because the conditional sales contract was not recorded, and second, because no law provided that recording the "Certificate" with the City Clerk perfected its lien to secure payment of the sum of \$2,165 from Berger.

The court held that Pate, the purchaser, could keep possession of the

automobile without paying the Mac Company any money.

This court explained that Pate, the innocent purchaser, would have had to give up possession of the automobile to the Mac Company, if the conditional contract had been properly and lawfully recorded. However, since no law authorized recording the "Certificate" with the City Clerk, the Mac Company had no lien to secure payment of the money owed by Berger.

Hence, Pate won this mortgage suit solely by reason of the Mac Company's failure to comply with the laws regulating conditional contracts.

Title is Important

Whenever a purchaser buys and pays for merchandise, he assumes the chance that the seller has no good title to the merchandise, whereby he may lose the entire purchase price. There are many reasons why a seller may have a no good title, some of which reasons are, as follows: The seller infringed a valid patent when manufacturing and selling the merchandise; or prior mortgage, conditional contract or other lien is recorded in a county, of any state in the United States: or the purchaser has possession of the merchandise, but with no valid ownership in it.

BUT ALL I TOOK FROM YOU WAS THE BOARDS.I DID ALL THE WORK MYSELF THE COURT SAYS
THIS IS
THE LUMBER



IMPROVEMENTS OR ACCESSORIES ON STOLEN MERCHANDISE BECOME THE PROPERTY OF THE REAL OWNER

For example, one may possess merchandise under a forged bill of sale, or he may have in good faith purchased stolen merchandise. In either case the true owner can take immediate possession of the merchandise from whoever now possesses it.

A recent higher court laid down new law that an innocent purchaser of stolen equipment can remove all accessories and special devices he purchased and installed on the stolen equipment. MACKLIN

Mac

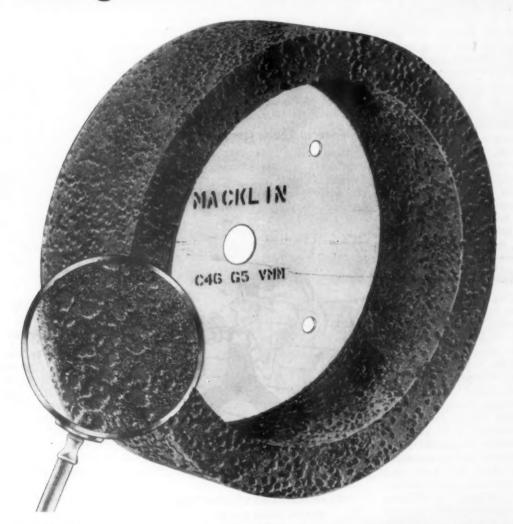
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For illustration, in Farm v. Mose, 90 Atl. (2d) 485, it was shown that one Whitton purchased and paid for a certain machine not knowing that it was stolen property. Later, Whitton sold the machine to one Mose. Finally the insurance company which had paid off the theft loss to the original owner, located the machine in possession of Mose and sued to gain possession of it.

The higher court promptly held that Mose must at once give up possession of the machine to the insurance com-

This court also decided that since Mose was innocent and had no knowledge that the machine had been stolen, he could remove from the machine various accessories he had paid for and installed.

Other higher courts have established law that if the person who steals equipment or merchandise installs accessories, or otherwise makes valuable improvements, he must return to the original owner the stolen merchandise or equipment including all improvements. In fact one leading higher court held that a thief must return to the original owner of stolen rough lumber, expensive furniture the thief made from the stolen lumber.

No Law Controls

Modern higher courts consistently hold that if no valid state, county or city law controls a legal situation, the testimony of recognized authorities and experts are acceptable to a court.

For illustration, in Gilger v. Montgomery Lumber Company, 47 N. W. (2d) 281, one Gilger sued such a seller for damages claiming that he purchased cinder blocks for use in constructing basement walls and that the seller warranted the blocks to be of sufficient strength for the construction work for which they were purchased. The purchaser also testified that the blocks were not of sufficient strength to render reasonable service and were defective. The facts are that after the blocks were laid and a sufficient time had elapsed for the mortar joints to cure, the house built on the blocks fell into the basement.

Gilger sent two of the blocks for testing, to the American Society for Testing Materials, which is a recognized organization. It is an organization which through its committees prepares specifications for materials and methods of testing materials to determine whether they meet the specifications. This Society has established two classes of cinder blocks, Class A and Class B. The Class A block is specified to be used in exterior walls below grade, and for unprotected ex-

terior walls above grade. The Class B block is a block to be used for other purposes. This Society requires that each Class A block has a compressive strength of at least 800 lbs. per square inch and a Class B block 700 lbs. per square inch. As the test for compressive strength of the blocks purchased by Gilger was only 265 pounds per square inch, the higher court held the seller liable in damages to Gilger, and said:

"The condition of the blocks that failed was such that in our opinion it supports the essential finding of the jury that the failure was due to an insufficient strength of these blocks to carry the weight of this house. Blocks showing a compressive strength of 265 lbs. are below the standard required by the American Society for Testing Materials."

Federal Trade Commission

Another important point of law decided by a late higher court is: The Federal Trade Commission has proper authority to order a seller or manufacturer to cease advertising its product falsely.

THEY TOLD ME THIS WOULD STOP THE LEAKS



THE LAW RESTRAINS SELLERS FROM MAKING FALSE CLAIMS FOR THEIR PRODUCT

For illustration, in Concrete Corporation v. Federal Trade Commission, 189 Fed. (2d) 359, the Federal Trade Commission issued an order requiring a company to cease and desist making certain representations as to the effectiveness of the products, as waterproofing agents.

For the purpose of inducing the purchase of its products the company circulated advertising folders, pamphlets and circular letters. Typical of the statements contained therein are the following:

"You can now permanently stop all leaks and seepage in concrete, brick,

stone and tile; also waterproof below water-level basements and pits under pressure. This is a special chemical mixture of iron and other chemicals that, when mixed with water only, and brushed into the cracks of walls and floors needing repair will permanently waterproof and stop leaks under all conditions no matter how severe."

One Cyrus Fishburn, a well qualified expert who has been with the Bureau of Standards since 1928, testified as to the results of experiments he conducted with the product. Although he applied three applications to a specimen brick wall, each in accordance with directions, nevertheless water seeped through at several points. The permeability tests given by him simulated an exposure of the wall to wind driven rain. Fishburn testified that the product cannot be considered to be a satisfactory waterproofing for permeable brick masonry wall when applied as directed.

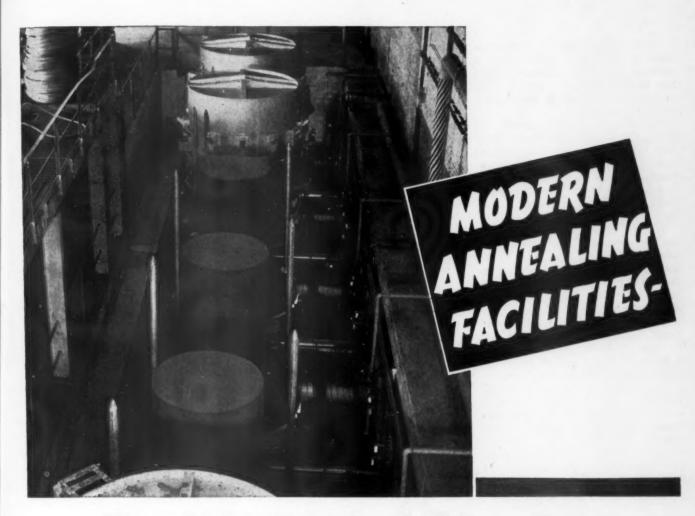
Therefore, the higher court approved the order of the Federal Trade Commission requiring that the company cease and desist making certain representations as to the effectiveness of its products, as waterproofing agents.

Quite obviously, a dissatisfied purchaser of the product can advantageously use this valuable testimony and evidence in a suit involving the prodnct.

Law of Fraud

Many state, county and city laws define fraud and responsibilities of sellers who practice fraud. However, in order that readers obtain dependable information as to their legal rights under the laws pertaining to fraud it is best to review late and leading higher court decisions which interpret these laws, rather than attempt to construe legally complicated laws which contain legal phraseology not readily understood by the average layman.

First, it is important to know that a purchaser cannot be defrauded if he knew about the defects or poor quality of the merchandise before he purchased it, or he did not rely upon representations made by the seller. A recent higher court held: A seller is not guilty of fraud and deceit unless these facts are proved: (1) the seller made a material and positive representation whether by words or silence; (2) that when made the seller knew it was fraudulent; (3) that the seller made it with the intention that it should be acted on by the purchaser; (4) that the purchaser acted in reliance on it; and (5) that he thereby suffered injury or financial loss.



For Cold Finished Alloy Bars

These modern furnaces insure uniform annealed quality, which is another important reason why Youngstown Cold Finished Alloy Bars are so satisfactory.

Their machinability and cold working properties are superior. Tolerances, metallurgical characteristics and all phases of the manufacture of Youngstown Cold Finished Alloy Bars are subjected to rigid quality control of a single integrated organization—from mining of the ore to shipment of the finished product.

Youngstown Cold Finished Alloy and Carbon Steel Bars are furnished in standard shapes and sizes, in both coils and straight lengths. For further information, phone or write our nearest District Sales Office.



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pof Under all circumstances a seller is bound to perform the obligations of a contract when the testimony shows that he misrepresented facts in order to induce a purchaser to enter into a contract of sale.

For example, in Montgomery v. Jacob, 159 Atl. 374, the higher court held that a purchaser was justified in refusing to pay for purchased merchandise where the testimony proved that the seller had misrepresented material facts regarding the quality of the merchandise. This court said:

"Where false representations as to material facts, which he knows to be false, are made by the seller of an article, and a contract of sale is induced thereby and in reliance thereon, it constitutes fraud on the part of the seller."

On the other hand, as above mentioned, if a purchaser does not rely on false misrepresentations made by a seller, he is not entitled to recover damages on the ground of fraud.

See Phelps v. Home, 46 S. W. (2d) 1090. Here it was disclosed that a seller misrepresented facts to a purchaser regarding the quality of merchandise. Afterward, the purchaser thoroughly inspected the merchandise and discovered its poor quality and then entered into the sale contract.

In subsequent litigation the higher court refused to render a judgment in favor of the purchaser, and said:

"This admission by the appellant (purchaser) shows that he did not rely on the alleged false representations of the appellee (seller), and that they did not constitute a material inducement to him to carry out the contract and to execute and deliver the note to the appellee."

Fraud of An Agent

With respect to contracts taken by a seller's salesman or agent, here is the law: An employer is not liable for fraud of his agent if the evidence proves either of these facts: (1) That the agent made a false statement after the sale contract was signed; (2) or the agent actually did not make a positive statement regarding the quality of the merchandise but merely expressed an opinion as to the quality of the merchandise; (3) or the purchaser did not rely upon or believe the statements made by the seller's agent.

For illustration, in American v. Lamb, 34 S. E. (2nd) 190, the higher court refused to hold a seller liable on an alleged fraudulent guarantee where the testimony showed that the seller merely expressed his honest opinion regarding the quality and ef-

ficiency of the merchandise. This court said:

"Commendatory expressions or exaggerated statements as to value, or the like, of equipment, as where a seller puffs up the value and quality of his goods, or holds out flattering prospects or gain, are not regarded as fraudulent. . . Looking to the future, as to what the purchaser can do with the property, how much he can make on it, how much he can save by the use of it, are on a par with false opinions as to the value of property, and do not generally constitute legal fraud."

Damages for Fraud

Assuming that a purchaser was induced to purchase unsatisfactory merchandise by a seller's fraudulent representations, the higher courts laid down this law: If the testimony positively shows that the purchaser was induced by fraudulent representations

YOU CAN TAKE MY WORD FOR IT

THIS I HAVE TO SEE FOR MYSELF



IF PURCHASER INSPECTS
MERCHANDISE BEFORE BUYING HE
CANNOT CLAIM FRAUD

to make a purchase contract, he has either of these three remedies: (1) He may at once rescind the contract and sue the seller for the money he previously paid the seller and return the unsatisfactory goods; or (2) he may refuse to accept delivery of the merchandise, and if the seller files suit the seller will be the loser; or (3) the purchaser may retain the merchandise and sue for the full damages he has sustained by reason of the fraudulent representations made by the seller.

Now, let us assume that a seller makes no guarantee or fraudulent statement regarding the quality of poor or defective merchandise. Nevertheless, the courts hold that the seller cannot avoid liability of the testi-

mony shows that due to the seller's silence the buyer purchased the unsatisfactory merchandise. The higher courts laid down this important rule of law:

A seller is duty bound to disclose all information regarding poor or defective merchandise or equipment to a purchaser (1) if such duty arises from a definite fiduciary relation between the buyer and seller; (2) or where the purchaser reposes his absolute confidence in the seller; (3) or where the particular kind of contract calls for perfect good faith and full disclosure by the seller.

What is Legal Acceptance?

Very often a purchaser unknowningly "accepts" merchandise which forever eliminates and forfeits his legal right to rescind the sale contract. In other words, if merchandise or equipment does not comply with the terms of the contract, the buyer may without any liability refuse to accept it, but the moment he "accepts" the merchandise his legal rights and liabilities become fixed.

The higher courts have established the law that legal acceptance of merchandise is, as follows: (1) acceptance of merchandise by a purchaser who makes no complaint of the price, quality or quantity of the merchandise within a reasonable time; (2) or acceptance of a shipment by the purchaser who makes prompt complaint to the seller, but afterward the purchaser is negligent in safeguarding the merchandise whereby it is lost, disfigured or damaged; (3) or, acceptance of merchandise by a purchaser who makes a prompt and justifiable complaint, but later uses or resells the merchandise; (4) or, acceptance and use by a purchaser of any portion of a shipment of unsatisfactory merchandise; (5) or, if the purchaser does any act which affects or varies the normal legal rights of the seller it is considered an act of

Stating the above explained law in a different way, regarding the legal rights of a purchaser where the seller fails to fulfill the exact terms of a sale contract, the purchaser has either of the four following remedies: He may, without notifying the seller, consider the contract void and sue for full damages he sustained as a result of the seller's breach; or he may demand that the seller fulfills the terms of the contract, and if the seller refuses to do so he may, at the expiration of the contract, sue and recover full and complete damages; or he may pay

(Please turn to page 366)



A lot more than you might think, folks. Consider, for example, the heating in your home . . . the warmth that keeps *her* snug and comfortable through a wintry night. Whether you use coal, oil or gas—wire rope is an indispensable part of the equipment that probes the earth's depths to bring this comfort to you. Chances are, it may be Wickwire Rope. Because for

over half a century Wickwire Rope has been an outstanding favorite with men in the mining and petroleum industries. Like users in numerous other lines of business, these men know that for unfailing performance, longer life and more economical service—there's nothing to match the quality and care that go into the making of WICKWIRE ROPE.

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New Products Ideas



New Line of Semi-Steel And Steel Lubricated Plug Valves

New semi-steel and steel lubricated plug valves feature quick and positive shut-off. All are wrench-operated and require only a quarter turn to open or close the valve. Lubricant grooves surrounding each port provide a positive seal when the valves are closed. In an open position, seating surfaces are not exposed. The valves are available with screwed or bolted glands; in semi-steel for 175 and 200 lbs. W.O.G.; in carbon steel for 150 and 300 lbs. W.P. The valves are manu-

factured by The Wm. Powell Company, 2525 Spring Grove Ave., Cincinnati 22, Ohio.

Stepless Temperature Controller Aid To Lower Production Costs

The West Instrument Corp., 525 N. Noble St., Chicago 22, Ill., is offering a stepless temperature controller of unusually close performance. It holds temperatures with no under or overshooting so that its use should result in less rejects and lower production costs. Loads handled are from 300 VA to 110 KVA.



REVERSIBLE "plastic dot" work gloves can be worn on either hand. New design is one of a line made by Riegel Textile Corp., 260 Madison Ave., New York 16, N. Y., in popular industrial styles. Imbedded plastic dots are said to double life of the glove.

25-Ton Capacity Strip Feed Press For Light Stampings



A strip feed press, the product of Baldwin-Lima-Hamilton Corporation, Hamilton, Ohio, greatly increases the speed production of can ends, screw caps, and other light stampings by means of multiple dies. In addition, the continuous feed stack provides for at least one hour production run before reloading. Rated capacity of machine is 25 tons. The new machine has an improved frame design using a welded steel structure by means of which perfect alignment is maintained without tie bars. Maintenance is kept to a minimum through use of a Fawick airflex clutch and brake directly on the crankshaft assuring smooth starting and almost instantaneous stopping.

New Formula Assures Dust-Free Care For Asphalt Tile Floors

An entirely new approach to floor and dust cloth treatment that will make the daily care of asphalt tile floors easy and safe is promised by a dressing, about to be put on the market. The product picks up dust then completely evaporates. It combines a non-oily base with (Please turn to page 130)



1904

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For full details and samples, get in touch with your nearest fabricator or assembly manufacturer, today. Or write: General Electric, Section 327-1A. Chemical Division, Pittsfield, Massachusetts.

You can put your confidence in _
GENERAL ENECTRIC

(Continued from page 126)
an effective formula that, according to the makers, comes closest to the perfect floor dressing. It can be sprayed or brushed on the floor. Because of its natural affinity to dust it immediately picks up dust and then evaporates, leaving no residue but only a dust-free floor with renewed lustre. Hillyard Chemical Co., St. Joseph, Mo., are the makers.

Paper Industrial Wiper Highly Absorbent, Strong, Disposable



A new industrial wiper made by Scott Paper Co., Chester, Pa., is strong, highly absorbent and easily disposable. Designed for general wiping needs, the wipers come in handy-size cartons with a "pop-up" feature that makes each one instantly available. Each wiper consists of two "perf-embossed" sheets which are welded together for extra durability, giving thorough cleaning action and maximum dirt retention. Chemical treatment creates wet strength. Scott will give a demonstration of the wipers in your plant on request.

Gas-Powered Fork-Lift Truck Has Automatic Transmission

Clark Equipment Co., Buchanan, Mich., has come up with the "Hydratork Drive", a new automatic transmission that makes it possible to operate a gas-powered fork-lift truck with the same three simple controls as are used to operate an automobile, namely, an accelerator, a brake pedal and a forward-reverse selector lever located on the steering column. The design of the unit eliminates the need for a gear shift for high and low gears and a clutch and clutch pedal. The capacity range of truck is from 6000-7000 lb.

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Rust-Oleum cuts costly manhours! Just scrape and wirebrush to remove rust scale and loose rust . . . then brush Rust-Oleum 769 Damp-Proof Red Primer directly over the sound rusted surface. Rust-Oleum fin-ish coatings available in many colors, aluminum, and white give you double protection. Sandblasting and other costly preparations are not usually required. Specify Rust-Oleum...prompt delivery from Industrial Distributor stocks in principal cities.

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Distinctive as your fingerprint, Rust-Oleum is an exclusive formula developed by a Master Mariner during more than 20 years battling actual rust conditions at sea. It incorporates a specially-

processed fish oil vehicle that will dry, is odor-free, and is formulated in many colors. Be sure you specify genuine Rust-Oleum to assure satisfaction. Accept no substitute.



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A heavy-duty waterproof boot has been designed specially for wearing over work shoes of construction workers, lumber operators, railroad maintenance men, shippers and similar occupations. Called the "Huskie", the all-rubber boot is ruggedly constructed throughout with high pile fleece-face lining to ensure comfort and warmth. Closure is by zipper for complete protection. Soles are of heavy crepe type construction. It is made in Cordovan brown rubber only, in sizes 6 to 13, by Tyer Rubber Co., Andover, Mass.

Punch Press Adaptor Features Speedy Operation



A punch press adaptor, designed for actuation by a mechanical punch press, is being put on the market by Burndy Engineering Co., Norwalk, Conn., for compression-installation of solderless electrical connectors. The adaptor consists of a frame, a ram and a hold down bolt. It can be easily installed in any standard crank type punch press having a 5-ton capacity, a shut height of 4¼" and a stroke of 1¼" The major feature of the adaptor is speed. Its operating cycle is less than one second. Complete die changes take less than 20 sec. Changes within a single rack can be made in under 5 sec. Installation takes less than 5 minWhat's Screwy?

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Aluminum Welding Flux Lets Operator See What He's Doing

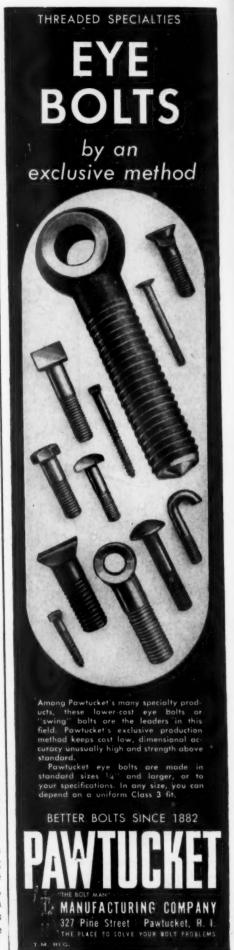
The operator can now see exactly what he is welding when using a new type of aluminum welding flux. The secret lies in the effectiveness of its fluxing action-the weld puddle is not hidden behind an opaque blanket of refractory slags and no puddling stick is used to remove oxide slag. The flux is sufficiently active and fluid to carry off the opaque slag blanket automatically. The flux is easily removed after welding and will not produce corrosive pitting on the parent metal. With it, the hotter flame of oxyacetylene can be used in aluminum welding without overheating. Made by Solar Aircraft Co., 2200 Pacific Highway, San Diego 12, Calif.

Instrument Controls Change Or Stoppage Of Air Flow Rate

A precision flow detector instrument has been developed to sense and respond to changes or stoppages in the flow of air. Originally developed to prevent high-capacity aircraft heaters from overheating if their intake becomes clogged, the device, called the Detect-A-Flow, can be used as a warning device in air-cooled equipment, ventilation control, and similar applications where a particular flow rate must be maintained. It may also be used as a liquid-level detector or controller in storage and supply tanks. It can be set to respond to any mass rate of flow of air from 1000 to 50,000 lb per hr per sq ft. Fenwald, Ashland, Mass., makes it.

New Hydraulic Coupling Can Be Disconnected Under Pressure

A hydraulic coupling that can be disconnected under full pressure is being manufactured by E. B. Wiggins Oil Tool Co., 3424 East Olympic Blvd., Los Angeles 23, Calif. There are two models: (1) a manually operated one which can be disconnected instantly with a "pull" and connected with a "push-pull"; (2) an automatic model which can be set to disconnect automatically at any desired load weight or be set to disconnect at a predetermined system pressure. The valves are always open when the coupling is connected and they cannot be closed when coupled. Conversely, the valves are always closed when the coupling is disconnected. This coupling eliminates shutting off the hydraulic in an emergency.



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'Warehouser' Industrial Truck Permits Backward Load Tilting



An electric, rider-type, industrial truck permits 41/2 deg backward tilting of loads without affecting unit load capacity. As the load is raised on the truck, it is tilted automatically by a cam on the upright channels. A hinge at top of carriage permits the action. Backward tilting insures load stability and is particularly desirable with lightweight or awkwardly shaped loads or for use on rough floors. The Yale Materials Handling Division of the Yale & Towne Mfg. Co., Philadelphia, states that the truck, which they call the Warehouser, especially fits into narrow aisle operation. It can right angle stack in aisles 6' wide or less.

Wheelbrush Provides Long Brush Life, Improved Performance



A wheelbrush which provides longer brush life, improved performance, increased maximum wheel speeds and insured balance and extra safety at no increased cost is announced by the Industrial Division of the Fuller Brush Co., Hartford 2, Conn. The tool can be used either singly or in multiple units in virtually any of the many factory or shop applications where wheelbrushes are adaptable, such as; metal finishing and polishing, removing burrs caused by metal cutting tools, removing the excess from molded rubber parts, removing scale and rust, wire stripping and

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Остовек, 1953

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Welder Developed To Ease Jobs Where Filler Metal Is Added

The field of application of highspeed, high-current-density, gas shielded welding is expected to be advanced by new considerably welding equipment specially designed for the consumable- electrode gas-shielded process. General Electric Co., Schenectady 5, N. Y., makers of the equipment, state that, hitherto, this field has been hampered by the necessity of using existing welding generators not specifically designed for this process. Called Fillerarc, the new apparatus enables the operator to more than double output on applications where filler metal must be added. In addition the equipment simplifies control and reduces operating and maintenance costs.

Rust Preventive Under High Humidity Conditions Announced

A rust preventive, which is a compounded oil with a non-metallic high potency additive, will be found particularly useful in steam and gas turbine lubricating systems in preventing corrosion of metal surfaces after the turbine has been shipped from the manufacturer and while waiting to be installed. It also prevents rust in the oil systems of other types of machinery under similar circumstances. It can be used to protect any metal surface against corrosion under high humidity conditions of storage. An added merit of this preventive, Gulf Oilcoat T. is that it is compatible with lubricating oils. It is a product of Gulf Oil Corp., Pittsburgh 30, Pa.

Greaseless, Plasticized Skin Gream Helps Avoid Dermatitis

Risk of dermatitis from soap and water and other skin irritants is made less likely for institutional employees with sensitive skin by a greaseless plasticized skin cream introduced by Abbott Laboratories, North Chicago, Ill. Named "Covicone" it forms an invisible plasticlike file that acts as a physical barrier against the external agents that cause skin irritations. It is applied three times daily for a week to ten days to build up the protective layer. After this, a single application every one or two days suffices to maintain continued protection. Not being removed by normal washing, it affords prolonged

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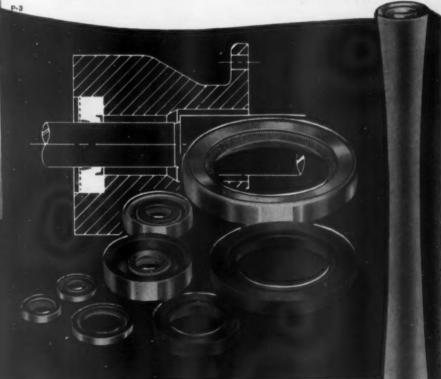
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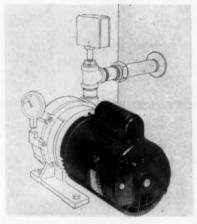
1489 CHARDON ROAD . CLEVELAND 17, OHIO

New Gage Blocks for Checking 1"-2" Micrometers



Gage blocks that will check 1" and 2" micrometers are announced by the DoALL Company, Des Plaines, Ill. The set includes three gages: .2500", .6500" and 1.000" respectively. These are used individually or in combination for checking the accuracy and wear of the micrometer screw at various points in its travel. Two optical parallels of fused quartz, .500" and .5125" thick, provide an accurate and simple method for checking the condition of the micrometer spindle and anvil faces. The two different sized parallels permit optical checks of the spindle at two rotation points, 1/2 of a turn or 180 deg apart.

Horizontal Or Vertical Mounted Fractional HP Jet Pump Motors

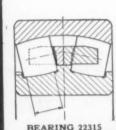


A new fractional hp motor for jet pumps is announced by the Fractional HP Motor Dept., General Electric Co., Schenectady 5, N. Y. It is a third lighter than previous models and is available in ¼, 1/3, ½, ¾ and 1 hp ratings. It can be mounted either horizontally or vertically and conforms to standard NEMA mounting and shaft dimensions. Slot insulations, wedges, and between-phase insulation are of Mylar, a duPont polester film. The windings are of Formex wire, which is resistant to aging, moisture, oils, mild acids and alkalies, it is claimed. Weight is from 13 to 25 lb and overall length from 10.3 to 12.64 in.

capacity

of spherical roller bearings 25% to 50% by means of improved internal design





This is the Spherical Roller Bearing design originated by MDSP more than 30 years ago. The cross-section shows how the integral inner ring flanges, and the undercuts adjacent thereto, limit the effective length of the rollers.





Here is the latest SESF improvement, a revolutionary advance in design. Effective roller guiding is accomplished by means of a separate ring. This eliminates the need for undercuts! This type of guide ring permits the rollers to take the position which their contact with the rings dictates. This assures uniform load distribution over the entire length of the longer rollers at all times. Result—greatly increased capacity and life.

ENF, the originator of the Spherical Roller Bearing, has, here again, provided Industry with another first through this improved design. During more than 4 years, thousands of installations have been made in railroad journals, vibrating screens, steel mill machinery and numerous other fields. Performance, in all cases, has been outstanding.

SKF Sales Engineers in our District Offices throughout the country will assist you in making use of the important advantages of the improved internal design of SKF Spherical Roller Bearings.

This 12-page booklet gives you additional facts—sizes available—added capacity, size by size—increased life you can expect for each size—dimensional tabulations—and load and speed data. Write for your free copy of Bulletin 365-1 now.

Philadelphia 32, Pa., manufacturers of and HESS-BRIGHT bearings.



Backstand Belts save 2 hours per day!

Armour Backstand Belts save 2 full hours per operator per day for steel tube company*

In removing burrs and grip marks from steel tubing, a well-known company* found they saved more than just the two hours per day operators had been given to make set-up wheels. Backstand belts outlast 4 to 5 set-up wheels—and without dressing they remain flat and true. And backstand belts give a bettee finish, due to their uniform grit.

Belts are only one of the many forms of Armour coated abrasives. There are more than 30,000 different varieties in grit size, backing, etc. We have sheets, discs, rolls, tubes – and specialties to meet your specifications. Your industrial supply distributor will tell you about this complete line. Call him today!

And, today—mail the coupon below for your free copy of our booklet, "How to Store Coated Abrasives." It can help you, too!

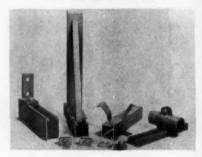


*Name of company available on request



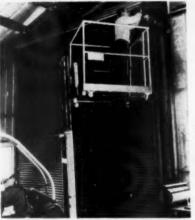
MAIL THIS COUPON Armour and Company • North Ber Please send me the free booklet, Abrasives."	nton Road • Alliance, O.
Name	Title
Firm	*
Address	

Versatile Structural Steel Framing Member

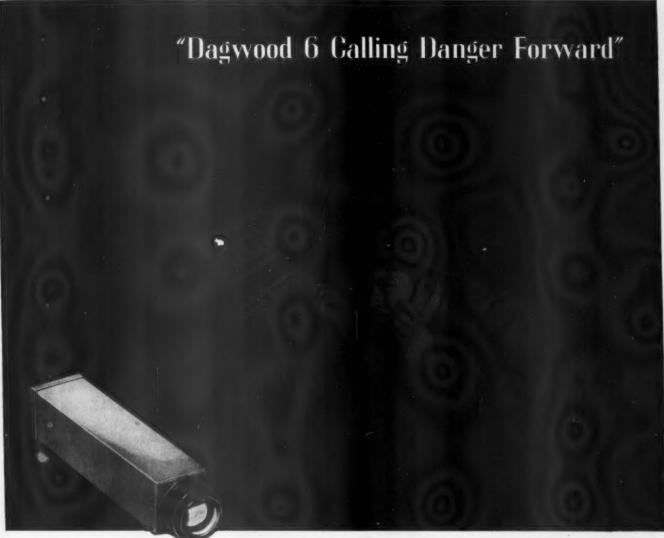


Versabar Division of M-H Standard Co., 515 Communipaw Ave., Jersey City 4, N. J. announces the availability of a new versatile steel framing member. Versabar channel is made from cold rolled carbon steel in four basic sizes. It can also be furnished in many different combinations to suit specific requirements. Some of the applications for which a wide range of connecting fittings are available include pallet racks, skid racks, bar stock racks, drum and barrel storage racks, metal storage racks, etc. There is no welding or drilling required. The only tools required for assembly are a wrench and a hack-

Mobile Safety Work Platform For Use With Fork Lift Truck



A mobile safety work platform, used in connection with a fork lift truck, offers something new and needed in the industrial field. It provides immediate and easy work access at any fork lift elevation. Thus, no set-up or erection is necessary; no need for scaffolding nor for ladders. The safety work platform has the merit of easier, faster and safer operation. It is ideal for construction work, industrial plants, machinery repair, shop maintenance, etc. The platform has a four-way fork entry, is 42" wide x 42" long x 42" high with a hinged gate at one side. Further details from: Hamerslag Equipment Co., 45 Elmira St., San Francisco 24. Calif.



U. S. ARMY PHOTOGRAPH

G.I. Joe now puts his calls through a new field switchboard twice the capacity and one-third the size of the one toted by his World War II counterpart.

The new "board" has a constitution that can winter in Rejkjavik, summer in Mombasa, and roll with a punch...just in case travel gets rough. Its retractable cords know when to come in out of the rain and goo.

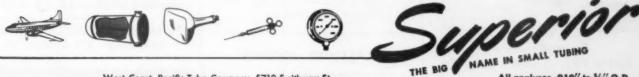
Among the many essential parts of this instrument there is one named simply "SIGNAL, switchboard." It is a luminous-painted signal, operated by an electro-magnet, which "drops" into view when a line is calling. There's one "drop" for each telephone cord circuit; each drop is enclosed in a square housing made from Superior Hard Drawn Carbon Steel AISI C1008—.6815" I.D.

Square, .020" wall, 2.656" long. Tolerances are close— \pm .005" on the length and \pm .007",—.000" on width.

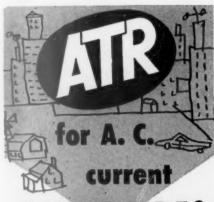
Mr. Lloyd Bender, Vice President of The North Electric Manufacturing Company, makers of the switchboard, says of Superior, "Your performance has been excellent—in workmanship, quality of material and delivery."

Are you looking for a good small-tubing source—one that gives you the widest choice of tubing analyses available in America today, one that can supply you with one or one-million feet, one known for its uniformly high quality, and its interest in you and your tube problems? Try Superior. Superior Tube Company, 2034 Germantown Ave., Norristown, Pa.

Round and Shaped Tubing available in Carbon, Alloy, and Stainless Steels, Nickel Alloys, Beryllium Copper, and Titanium



West Coast: Pacific Tube Company, 5710 Smithway St., Los Angeles 22, Calif. UNderhill 0-1331 All analyses .010" to %" O.D.
Certain analyses in Light Walls up to 21/6" O.D.



ANYWHERE!



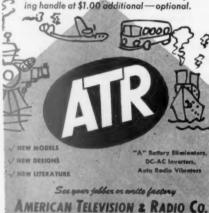
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For Inverting D.C. to A.C.... Specially Designed for operating A.C. Radios, Tape Recorders, Wire Recorders, Record Changers, Television Sets, Amplifiers, Address Systems, Radio Test Equipment and most small electrical and electronic devices from D. C. Voltages in Vehicles, Ships, Trains, Planes and in D. C. Districts.

Type	DC Volts	A.C. Output 60 Cycles	Wat Int.	tage (Consumer Net Price
6-LIF	6	110 volts	40	35	\$25.55
12-LIF	12	110	50	35	25.55
* 6-RSD	6	110	85	75	39.25
*12-RSD	12	110	125	100	39.25
32-RSD	32	110	150	100	39.25
110-RSD	110	110	250	150	39.25
*12T-HSG	12	110	250	200	96.45
110AT-RHE	110	110	325	250	56.95

There is an ATR model for most any application. *Available with leather carrying handle at \$1.00 additional —optional.



Zuality Products Since 1931 SAINT PAUL 1, MINNESOTA-U.S.A.

CLASSIFIED SECTION
SEE PAGE 374

31b. 'Work-Lite' Portable Drill Permits Working in Dark



It is often a problem to work in the dark, especially when it is necessary to drill a hole in hard-to-reach areas. This can now be done, according to Fairchild Industries, Division of Fairchild Camera & Instrument Corp., Burlington, Vt., without the bother of an extension cord and lamp with the company's 1/4", standard duty, "Work-Lite" portable electric drill. Weighing only 3 lb, it is equipped with a Jacobs geared chuck, a Cutler-Hammer trigger lock type switch, bright aluminum die cast housing, ball thrust and armature spindle ball bearings and a no-load speed of 2100 rpm.

Goggles Can Be Worn Over Prescription Glasses



A goggle that can be worn over prescription glasses and provide a comfortable fit with ample clearance over modern, large-frame prescription glasses is announced by Willson Products, Inc., Reading, Pa. Two versions are offered-a chipping style with clear, heat-treated glass lenses and a welding goggle with choice of filter lens shades. Molded nylon eye cups, an outstanding feature of the goggle, give the user the advantages of light weight, toughness, non-flammability and low conductivity of heat. Standard 50 mm round lenses are used in both models, eliminating the need for stocking odd-size replacements.

• GIFTS

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- · WATCHES
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- SILVERWARE
- ELECTRICAL
 APPLIANCES
- TROPHIES
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- . LEATHER GOODS
- MANY OTHER GIFT LINES

WALDRON & CO.

INCORPORATED

PO.BOX 659, PHILADELPHIA 5, PA. SHOW ROOM: 1211 CHESTNUT ST.

Trying to reduce piston packing maintenance? J-M Pump Cups after removal from feed water pumps

at Morgan Laundry. Set above consists of 2 J-M "A" Cups with spacer and 2 followers, mounted on pump rod

At the Morgan Laundry, J-M Moulded Packings provide

"8 times longer lifereplacement in 1/6 the time

The Morgan Laundry, large supplier to hotels and institutions, requires dependable, trouble-free service from boiler room equipment. In their New York City plant, the Engineering Department found that conventional piston packings for boiler water feed pumps lasted only a relatively short time. Many hours of down time were required to replace packings. Liner wear became progressively worse.

When the Engineering Department changed from the conventional material to J-M Moulded Packing Cups, service life of the packing was increased more than 8 times. Liner wear was greatly reduced. Replacement with the new packings was made in 1/6 the time. Packings could be easily installed for proper service, without special skill or experience. Satisfaction with this application has led to the use of J-M

Moulded Packing Cups on other boiler room equipment and on presses in the Morgan Laundry plant.

These precision moulded packings offer definite advantages over conventional types. Because they form a highly efficient seal, they contribute to improved performance, lower operating and maintenance costs. For steam pump pistons, they are available in sets consisting of two cups and two followers, with a spacer. This pump cup set, J-M Style 80, is similar to that shown in the illustration above.

Your Johns-Manville Packings Distributor can help you make the right selection for your application, from Johns-Manville's line of custom-made Piston Packing Cups. For complete details write him or Johns-Manville, Box 60, New York City 16. In Canada, 199 Bay Street, Toronto 1, Ontario.



Johns-Manville PACKINGS & GASKETS

ELECTRO Extra DYNAMIC Dependable

The WINDING is the HEART of the motor

Every Electro Dynamic motor is built with EXTRA INSULATION in stator slots and between phases EXTRA IMPREGNATIONS and bakings of the

wound stator
EXTRA HIGH-FREQUENCY TESTING
of insulation between turns

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From 1 to 250 Horsepower (H.E.M.A. STANDARDS)

One-piece cast iron frames.



Extra large
"free-flo" air
channels.

Permanently aligned cast iron brackets.



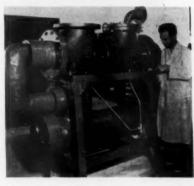
Liberal size grease lubricated bearings.

Also a complete line of Direct Current motors and generators

ELECTRO () DYNAMIC

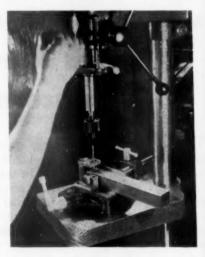
DIVISION OF GENERAL DYNAMICS CORPORATION
BAYONNE, NEW JERSEY

High Speed Vacuum Pump Ready For Metallurgical Systems



Consolidated Vacuum Corp., Rochester 3, N. Y., is now producing a vacuum pump with high pumping speed, specifically designed for use in large volume dehydration and vacuum metallurgical systems. Rugged in construction, the pump, type KB-1500, can be successfully utilized on systems containing large amounts of dust and other impurities because of its wide internal jet clearances. To facilitate installation, the inlet and outlet connections are provided with standard 150 lb. flanges of 12" IPS and 4 IPS respectively. The fully insulated boiler is equipped with an electric immersion type heater for economy in power consumption.

Drilling Flexibility Claimed With New Movable Safety Vise



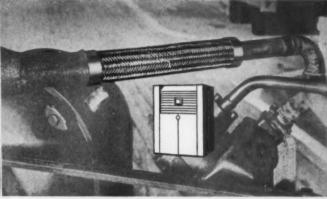
A safety vise, featuring a lightning fast ratchet jaw, makes for fast set-ups on production pieces. Three bosses facilitate easy jig adjustment. Any number of holes can be drilled without removing the work as the vise turns over on three sides for drilling flexibility. The vise locks at any position on the table by a quarter turn of the "T" handle, thus making it a dependable drill jig when duplicate pieces are required. The makers, Wahlstrom/Float-Lock Sales Dept., American Machine & Foundry Co., 511

(Please turn to page 152)

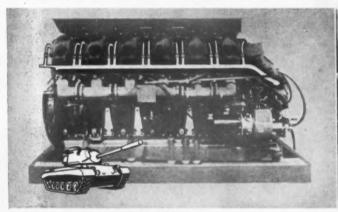
These 4 may end your design worries, too



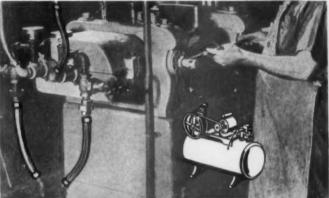
END FUEL LINE FAILURE. Four Wheel Drive's famous trucks stand up to roughest service. So do their Titeflex® oil and fuel lines. Automotive engineers specify Titeflex metal hose because it resists wear, vibration and corrosion—won't crack, bake or deteriorate under high engine temperatures.



ELIMINATE VIBRATION. To end vibration and prevent leaks around fittings, Uniflex seamless metal hose is installed between circulator coils and motor of GE's packaged air-conditioning unit. Made by Titeflex, Inc., Uniflex withstands critical stress and strain—is inherently leakproof.



BANISH IGNITION TROUBLE. Neither mud nor dust, snow, water or lubricants can affect the Titeflex-protected ignition leads of Continental engines in Patton M-48 Tanks. Also suppresses radio interference. Titeflex is a leader in developing ignition harnesses and metal hose lines for Army Ordnance tanks and vehicles. Titeflex quality pays off here.



CONVEY CRITICAL FLUIDS SAFELY. Cooling lines to rubber milling machine use flexibility of Titeflex to advantage. In other applications, tough, corrosion-and-wear-resistant Titeflex safely conveys oil, steam, gases, lubricants, brine, acids, oxygen and compressed air. Rugged, seamless Uniflex withstands extreme vibration, physical abuse and strain.

THERE'S ALMOST NO END to the engineering uses for Titeflex® seamed flexible metal hose or Uniflex seamless metal hose. From aircraft to automotive equipment—from drain lines to dental units—Titeflex simplifies design, construction, operation and maintenance. For types of hose, fittings, assemblies, applications and engineering data, keep our new 48-page Metal Hose Catalog No. 200 at your elbow. Use the coupon below to bring it and our design service without delay.

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(Continued from page 150)
Fifth Ave., New York 17, N. Y., state
that a choice of 9" or 12" jaw opening
makes the vise an excellent holding

Speed And Efficiency Highlight Features Of Industrial Sweeper



G. H. Tennant Co., 2566 N. Second St., Minneapolis 11, Minn., reports high efficiency for their newly introduced industrial power sweeper. It is claimed that one man can tilt and dump its fully loaded dirt hopper in just 30 sec. With a few turns of a ratchet type level, he can empty the 9 cf pan of loads weighing up to 700 lb. The machine is said to sweep over 100,000 sq. ft. per hour in open areas. It sweeps a 36" path; picks up dirt, litter and dust at speeds up to 6 mph. A rotary 21" side-brush increases path width to 48" and allows sweeping flush with walls, curbs, fences and under guard rails.

soot

Announce Carbide-Tipped Drills 1/8" To 11/2" For Masonry Jobs



A carbide-tipped masonry drill, in individual size range from 1/8" to 1½", efficiently drills in stone, concrete, brick, marble, slate and other types of masonry. It makes holes that are both straight and round, with the added feature of minimum noise, easy operation and long life. The flutes are shaped for positive removal of dust. The drill may be used in drill presses or portable electric drills, preferably at the slowest speed available. With a hand brace, it may be used in glazed tile if the hole is started by center punching the hard surface. The drill is made by the Cleveland Twist Drill Co., 1242 East 49th St., Cleveland 14, Ohio.



QUICK INSTALLATION SAVES YOU MANHOURS when G-E gear-motor is used on compact machines like this soot blower for power plant equipment. Neat, packaged construction permits quick, easy installation in limited space.

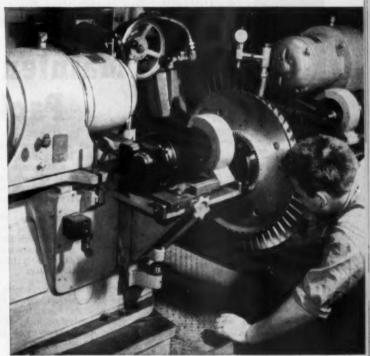


SIMPLE MAINTENANCE SAVES YOU MONEY. If electrical maintenance is ever needed on this G-E Tri-Clad gear-motor —driving scraper in a grannery —3-piece design will permit stator removal without disturbing gear train.





3 PROMPT DELIVERY SAVES YOU TIME—assures you of getting the gear-motor you need when you need it. A new multiple point stock plan permits one-week delivery on more than 300 models of General Electric gear-motors.



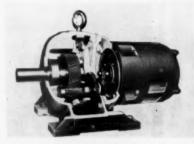
THE "RIGHT" GEAR-MOTOR SAVES YOU TROUBLE on precision operations like grinding jet engine bucket blades. General Electric's wide selection assures you of the correct gear-motor for your particular low-speed application.

For more information about G-E Tri-Clad gear-motors contact your nearest G-E representative, agent, or distributor, or write to General Electric Company, Section 755-12, Schenectady 5, N. Y. for your free copy of new Bulletin GEA-1437H.





Integral Gearmotor Series Of 1 To 15 HP Now Being Offered



Something new in their popular line of gearmotors is offered by Century Electric Co., 1806 Pine St., St. Louis 3, Mo. They announce a complete new integral gearmotor series from 1 to 15 hp in a wide range of speeds in single, double and triple gear reductions. Gears meeting AGMA class I, II and III specifications can be had to fit varying load requirements. Motors are available with constant or variable speeds and with protective frames to operate under almost all types of atmospheric conditions. A free bulletin can be had from the manufacturers containing illustrations, operating data and appli-

Lok-A-Blok Builds Terminal Blocks Up To 25 Poles

A new device, named Lok-A-Blok, by Ilsco Copper Tube & Products, Inc., Cincinnati, Ohio, enables users to build terminal blocks in various lengths and combinations up to 25 poles without waste. It consists of three simple parts quickly assembled without tools: (1) red blocks which house the solderless connectors; (2) the solderless connectors; (3) a yellow lock-strip which holds the assembly together and acts as an identification strip. A hand tool can be supplied which reams the necessary holes for mounting. With excellent electrical properties, the device is economical for wire termination.

Bench Model Drill Grinder Has No Carbide Tool Grind Feature



A new single purpose bench model drill grinder, without a carbide tool grinding feature, is announced by the

(Please turn to page 158)



YOUR LAMSON DISTRIBUTOR



Your Industrial Distributor makes service and quick delivery an important part of his operation.

If you consider him as YOUR warehouse you can save yourself the overhead, inventory and accompanying extra costs involved in maintain-



AROUND THE CORNER

ing a stockroom. This is especially important when your need for fasteners is subject to sharp fluctuations.

Your Lamson Distributor is ready to fill your fastener needs as well as render suggestions and engineering help on fastener problems. You have, in fact, a complete fastener stockroom and staff as close as your telephone. Call him next time you need fasteners.

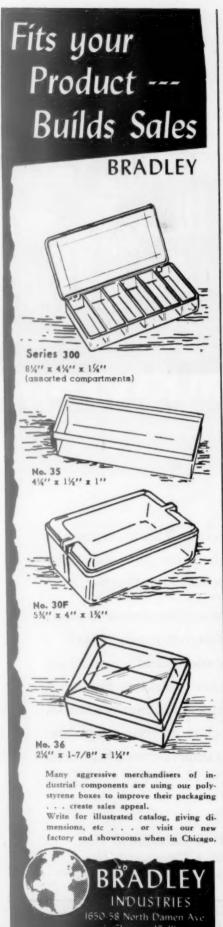


The LAMSON & SESSIONS Co.

1971 West 85th St. • Cleveland 2. Ohio

Plants at Cleveland and Kent, Ohio . Birmingham . Chicago

FOR PROMPT DELIVERY AND HELPFUL SERVICE, ORDER FROM YOUR LAMSON DISTRIBUTOR



(Continued from page 156)
McDonough Mfg. Co., Eau Claire, Wis.
It has a capacity for ½" to 2½" drills and handles 2-lip, 3-lip and 4-lip drills without any change in set-up.
No collets or jaws are required to hold the drills. It is claimed that its operation is so simple that any worker can quickly learn to grind drills correctly and accurately. It incorporates a built-in diamond holder for accurately dressing the wheel. The grinder's heavyduty ½ hp motor operates on a 110 v circuit and straight cup wheel 6" x 1½" x ½" with 4" x 1" recess is used.

Faster Lifting Possible With New Adaptable Handy Hoister



Maintenance work around the plant is considerably facilitated, claim Lewis-Shepard, Watertown, Mass., by means of their new handy hoister. It provides in one tool the means of moving and loading equipment from working areas to repair points. The hoister has a planetary gear winch operation which lifts faster, requires less total effort, and permits smooth, precise load levelling. Each crank revolution of the winch lifts a 500 lb. load 3"—almost twice the rate of the usual winch performance. The lifted loads maintain position without slipping. For specialized handling, the lifting platform can be replaced by a lifting arm, a cradle type platform, a roller platform, or forks.

Heavy Deposit, Hard Finish In Chrome Plating Developed

A new chrome plating concentrated solution, Chromasol No. 2, has been developed by Ward Leon-ard Electric Co., Mt. Vernon, N. Y., for use with industrial chrome plating units. The solution has deposit hardness characteristics comparable to any conventional chrome plate above the file hard range. It can be applied to most metals in deposit thicknesses of 0.015" or more. Featuring "brute" hardness, heavy deposits, high abrasion resistance and ease of application, makes it ideal for salvaging worn or undersize parts, gages and tools. It is available in quarts, gallons and carboys.

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OAKLAND, Calif. Gilmore Steel & Supply Company Glencourt 1-1680 Earle M. Jorgensen Co., Higate 4-2030

OMAHA, Nebr., Atlantic 1830 Gate City Steel Works

ORLANDO, Fia., Phone 5-1515 Robinson Bros., Inc.

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PHOENIX, Ariz., Phone 8-5331 Arizona Hardware Co., Inc.

PITTSBURGH, Penna., Hemiock 1-5803 Foliansbee Metal Warehouses

PORT ARTHUR, Tex., Phone 5-9377 Standard Brass & Mfg. Co.

PORTLAND, Ore., Tuxedo 5201 Eagle Metals Inc. of Oregon

SAN FRANCISCO, Calif., Klondike 2-0511 Gilmore Steel & Supply Company

SEATTLE, Wash., Lander 9974 Eagle Metals Company

SHREVEPORT, La., Phone 2-9483 Standard Brass & Mfg. Co. SPOKANE, Wash., Keystone 0586 Eagle Metals Company

ST. LOUIS. Mo., Lucas 0051-2-3 Industrial Metals, Inc.

SYRACUSE, N. Y., Syracuse 72-6677 A. R. Purdy Co., Inc.

WICHITA, Kans., Phone 7-1208, 7-1209 General Metals Incorporated WORCESTER, Mass., Worcester 7-4521 Merrill Aluminum Corporation



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Here's How your Kaiser Aluminum Distributor can help you acquire a new plant addition at no cost whatever:

Instead of wasting valuable floor space for storage of slow-moving inventories, you can use your Kaiser Aluminum Distributor's warehouse as your own. You'll get regular deliveries of aluminum stock to machine-side as you need it. This means you can turn dead storage space into live, profitable production space.

It also means that your overhead costs on space for storage are greatly reduced. And you can offer better service to your customers because you have, immediately available, widely diversified stocks of aluminum to choose from. Take advantage of the many services offered by your Kaiser Aluminum Distributor to help you increase your production, cut your costs, raise your profits. Regardless of the size of your order, he'll give personal, experienced attention to your aluminum problems. Let him go to work for you today.

Kaiser Aluminum

SETTING THE PACE ... IN GROWTH, QUALITY AND SERVICE

Producers of: Sheet · Coil · Plate · Pig · Ingot · Billet · Foil · Electrical
Conductor · Residential Siding · Corrugated Farm and Industrial Roofing
Shade Screening · Rod, Wire & Bar · Screw Machine Stock · Forging Stock
Rivet Wire · Roll-formed Shapes · Extrusions

Your Kaiser Aluminum Distributor is listed at the left; See him—soon!

Get all these benefits now from your Kaiser Aluminum Distributor!

- USE THE LARGE STOCKS maintained by your warehouse distributor as your own. This gives you a wide, readily-available selection of alloys and sizes of aluminum.
- YOUR COSTS OF HANDLING in and out inventory, damage, obsolescence, insurance, taxes and accounting are reduced when you use your distributor's inventory as your own. Overhead costs on space for storage also are reduced.
- BY PURCHASING AS YOUR NEEDS ARISE you need less space to house your raw materials. You can devote more space to profitable production.
- 4. LET YOUR DISTRIBUTOR'S shears and slitters work for you to help increase your production per day. Slit, sheared or sawed stocks tailor-made to fit every production demand can be delivered to you daily.



Fulltred floor wax makes every step safer because it contains Ludox*. It gives floors a glow of long-lasting beauty. When the wax is stepped on, the hard, tiny "Ludox" spheres are pressed into the larger, softer wax parti-

cles. This creates a snubbing action . . . helps keep the foot from slipping.

Fulltred is water-resistant . . . freezeresistant. It levels easily and can be quickly removed for re-waxing.

*Registered trade mark of the duPont Co.

YOUR FLOORS' BEST FRIENDS BEAR THE FULLER LABEL

fullustre floor wax Imparts a brilliant lustre without hard buffing.

fullduty floor wax

For heavy duty applications on any type of floor.

liquid floor cleaner Quick action on dirt and wax removal. Safe for any floor.

All above liquid waxes available in 1, 5, 30, and 55 gallon containers.

For further information call the Fuller Industrial Representative listed in your local telephone directory or write directly to The Fuller Brush Co.

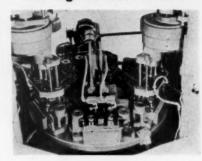
Manufactured, Guaranteed & Sold by . . .



3554 MAIN STREET . HARTFORD 2, CONN.

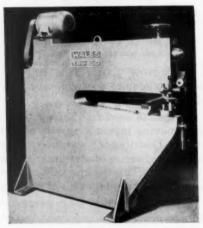
Power driven brushes, Factory & Institutional cleaning tools, Waxes & Detergents

6-Station Indexing-Type Machine Has High Production Rate



An automatic 6-station indexingtype machine with specially designed fixtures and multiple spindle heads, is said to drill, ream, mill and countersink steering gear pistons at the rate of 400 per hour at 100% efficiency. An unusual feature of the fixture and clamping mechanism is the dead-center indexing table mounting a stationary cam track. Rollers, attached to the fixture clamping mechanism, pass through as the table indexes from station to station. Limit switches, also attached to the center, make it impossible for the machine to operate unless the parts are clamped in place. Manufacturers are Turner Brothers, Inc., 2625 Hilton Rd., Ferndale, Mich.

Shear Is Designed for Speedy Operation



A giant model shear, designed for contour and straight inside and outside shearing, beading, louvering and joggling has a capacity up to 9/32" thick mild steel. It is a product of Wales-Strippit Corp., 345 Payne Ave., North Tonawanda, N. Y. A new shearing principle eliminates resistance to feeding and turning the work. In addition, feeding of material may be started while ram is operating. Inside cutting requires no starting holes, entirely doing away with any preliminary

(Please turn to page 162)



AVIATION



MARINE



INDUSTRIAL



BROADCASTING



PADIO-TY LEAD-INS



TEST EQUIPMENT



RADAR, PULSE, EXPERIMENTAL EQUIP-MENT AND SPECIAL TYPES

TRUSTWORTHY TRANSMISSION

For Every HF · VHF · UHF Application

With Federal's
QUALITY-CONTROLLED
COAXIAL CABLES

Whatever your field of application ... whatever your transmission line requirement ... Federal is ready to serve you. If the cable you need doesn't exist, Federal will cooperate with you in developing and producing it in any quantity!

Federal offers you one of the nation's most diverse stocks of RG type cables—including the Federal-developed low-temperature, non-contaminating thermoplastic jacket.

Quality-controlled throughout the entire manufacturing process, Federal cables bring trustworthy transmission to every electronic application . . . plus top flexibility and superior resistance to abrasion, weathering and corrosion.

Before you specify cable—or complete cable assemblies—for any general or military application, get the facts and figures from Federal. We have the answer or we can get it!



FEDERAL HAS A NEW CABLE CATALOGUE

This new 28-page buying guide contains a world of up-to-date information on Federal's quality-controlled cables, plus numerous useful tables and diagrams. For your free copy, write to Federal today, Dept. D-734.

Manufacturer of America's most complete line of solid dielectric cables

Federal Telephone and Radio Company

SELENIUM-INTELIN DEPARTMENT . 100 KINGSLAND ROAD, CLIFTON, N. J.

In Canada: Federal Electric Manufacturing Company, Ltd., Montreal, P. Q. Export Distributors: International Standard Electric Corp., 67 Broad St., N. Y.

Chase Bag makes



MULTIWALL BAGS

Paper bags for food products, rock products, fertilizer, chemicals, etc. Valve or open-mouth type with pasted or sewed bottoms.



WATERPROOF DRUMHEADS

Made of durable, waterproof Chase burlap Protex, (burlap laminated with asphalt to heavy crinkled paper). Keeps drum and heads completely dry. No leakage because there are NO SEAMS. Draw cord permits cover to be removed and reused.

all of these products



POLYTEX LINERS

Made from polyethylene. Ideal inner protection for powdered milk, anhydrous and hygroscopic products. Odorless, moisture-proof, bacteria and mold resistant.



POLYTEX TURKEY BAG

This fine polyethylene packaging material fits your turkeys like a glove! Choice of lengths and widths and beautifully printed. Nontoxic and airtight! For poultry or meats. Write us today.

for industry



CHASE TWINES

Good-quality, uniform, and dependable twines. Chase Hi-Speed Sewing Machine Thread, Dixie Cotton Sail Twine and Hindoo Jute Twine.



SLIP-ON BARREL COVERS

They're RIGHT on the barrel head! Made of tough Neoprene-treated crinkled kraft. Slip on all sizes of barrels and drums—easily and quickly. Elastic skirt keeps out dirt! Choice of printed or plain.

and agriculture



REDI-RAPT TUBING

Chase two-way stretch burlap spiral tubing easily wraps any product that is hard to wrap. Bias sewn tubing is uniform in width, circumference and stretch.



CHASE CRINKLED LINERS

For bags, barrels, boxes, and drums. Available in 2 types: 1. crinkled for one-way stretch, 2. crinkled and pleated for stretch in all directions. Waxed or unwaxed. We will send you samples. Write today.



GENERAL SALES OFFICES: 309 W. JACKSON BLVD., CHICAGO 6, ILL.
30 BRANCHES AND SALES OFFICES STRATEGICALLY LOCATED



(Continued from page 160) operations. The unique cam design provides vibrationless operation. An adjustable bottom shearing die is quickly set for various material thicknesses. It cuts from 10 to 36 fpm, depending on gage and material

New Dropout Fuse and Load Break Cutouts



Better fault protection or opening of circuits under load is provided with an improved line of opendropout fuse and load-break cutouts. New features include a hollow-tube, wet-process, porcelain insulator with the mounting support clamped to the porcelain by a "U" bolt insulated with a rigid polyvinyl chloride insulation for achieving complete birdproof construction, and a shielded top contact and latch protection from dirt or sleet. Also, top and bottom fittings are compression-bolted to porcelain for maximum strength. The line includes ratings of 7.8 kv and 15 kv, 100 amp. They are made by the Distribution Transformer Dept., General Electric Co., Pittsfield, Mass.

55 Different Models And Sizes Added To Spur Gear Hoist Line

A total of 55 different models and sizes of spur gear hoists have been added to their line of hoists by the Coffing Hoist Co., Danville, Ill. Included among new units are 15 sizes of single- and multiple-chain spur gear hoists with capacities from 1/4 to 25 tons. For specialized applications, there are now plain and geared army type hoists, 1/4 to 10 tons; low headroom hoists 11/2 to 24 tons; clevis connected hoists, 1/4 to 10 tons and extended hand wheel hoists from 1/4 to 3 tons. In the army and low headroom models, the hoist is an integral part of the trolley. Clevis-connected hoists are for use where headroom is lacking. The extended handwheel hoists permit operator to stand away from the

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One Sure Source

When electronic tubes fail, this purchasing agent knows exactly where to go and what to do to get replacements in the least possible time. He checks his Westinghouse Personalized Inventory Form.

Thanks to the salesman from his local Westinghouse Tube Distributor, this form assures him that a complete up-to-date inventory of his electronic tube needs is available and awaiting his phone call.

For instance: A company using electronic tubes in rectiflers, resistance welders, and motor controls cannot always keep a full inventory of replacement tubes. But the local Westinghouse Tube Distributor can keep such an inventory, IF the purchasing agent or maintenance engineer assists the distributor's salesmen in filling out a Westinghouse Personalized Inventory Form.

You can be sure... if it's Westinghouse

For sure protection against "down time" due to tube failure, ask your salesman of Westinghouse Electronic Tubes to complete a Tube Inventory Form for you. For your nearest distributor's name write Dept. E-110, at the address below.

ET-95035

RELIATRON TUBES

WESTINGHOUSE ELECTRIC CORPORATION, ELECTRONIC TUBE DIVISION, ELMIRA, N. Y.



It's the "know how" of nearly 40 years of production stamping service that counts. De-Sta-Co's main stamping plant is especially geared for production runs of light to medium-heavy fabrication, up to 3/8". Our bed areas range from 10" x 12" to 48" x 72", pressures from 5 to 250 tons. We draw up to 4" deep. During the years we have built up an impressive record in coining operations, our knuckle-action presses handling up to 400-ton capacity. The diversification of our equipment means your job runs on the most efficient press. Our highly mechanized material handling system saves dollars for you, helps us keep our delivery record one of the best in the business. That's why "De-Sta-Co" means "Integrity."

DE-STA-CO

QUALITY STAMPINGS

For quotation send a sample part if possible, with a drawing, specifications, and quantity required. You'll get a prompt reply.

For Multi-Stampings — high volume, small, intricate parts — there's our department of Four Slides Automatics. From a blank size within $2\frac{1}{2}$ " x $12\frac{1}{2}$ ", a single stroke performs such operations as piercing, forming, swaging, embossing, twisting, curling and reforming from coiled stock. A part is completed each stroke, ready for its single inspection. This is especially advantageous where forming around a mandrel is required. Special washers, precision flapper valves, shims and other exacting work are additional De-Sta-Co specialties.

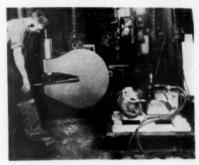
Send for our Stamping Brochure illustrating our production facilities



Grinding Wheel Developed For Use On Gemented Carbide Tools

An entirely new type of grinding wheel, called the MM, has been developed by Macklin Co., Jackson, Mich., for grinding all kinds of cemented carbide tools. Tests have shown that grinding time can be reduced as much as 50% and wheel life increased as much as 300% with the wheel, which is constructed in a manner new to the grinding wheel field. It grinds the shank steel equally as well as the carbide itself and eliminates metallurgical injury to the carbide. The unique construction of the wheel achieves faster cutting, better finishes and longer life than possible with wheels of conventional construction.

New Guillotine Punch Takes Rolling Operation Test Slugs



A guillotine punch has been designed for production use and for taking test slugs during rolling operations. It combines tremendous thrust with relatively light weight and mobility. The punch weight is 1,650 lb. It provides a 75 ton thrust and is capable of punching a 1" hole through 3/4" mild steel plate. The punch rate is 13/16" to 13/4". The operating cycle takes only 3 sec. per punch. The unit can be boom mounted and swung into position to punch. It is powered by a 2 hp electric hydraulic pump unit which can be foot valve operated. The manufacturer is Manco Mfg. Co., Bradley, Ill.

Capacitor Announced In Three Styles For Indoor, Outdoor Use

A capacitor, 15-kvar and 230 v, for outdoor and indoor applications is available in three styles: 3-phase indoor, single phase outdoor, 3-phase outdoor. The unit is specially suited for outdoor use on secondary circuits and on secondary networks where it delivers 13.3 kvar at 216 v. Where multiples of kvar are needed for outdoor use of pole mountings, the capacitors may be mounted in the standard one-, two-, and four-unit brackets. The capacitor is also available for indoor use in dust-tight and rack-type equipment. The

(Please turn to page 168)

Dependable, Efficient

AIR COMPRESSORS YOUR PRODUCTION MORE PROFITABLE AIR HOISTS



PRECISION BUILT COMPRESSORS

UP TO 50 H.P.

- Advanced two-stage design saves electric current.
- Delivers more air per horsepower.
- Timken tapered main bearings.
- Pressure lubricated rod and piston bearings.
- Assures long trouble-free performance.

TIME-SAVING CHIEFE'S

Air Cylinders and Air Hoists



Curtis Bracketed Air Cylinder can be placed in any position from horizontal to vertical. Will lift, lower, push or pull.

- Low-Cost lifting, lowering, pushing, or pulling
- Accurately controlled operating speed
- Cylinders are ground and polished
- Valve is of disc type lapped to its seat.

Curtis Pendant Air Hoist for any lifting or lowering job where headroom is not limited.



FOR COMPLETE INFORMATION and technical data, mail this coupon today . . .

CURTIS PHEUMATIC MACHINERY DIVISION

CURTIS PNEUMATIC of Curtis Manufacturing C 1908 Kienlen Avenue, St.	0.	DIVISION 741
am interested in items ch		5
AIR COMPRESSORS	AIR HOISTS	AIR CYLINDERS
CapacityCurrent	loadlift	LoadLift
Name	***********	
Firm		
Street	***********	
City	Zon	eState



(Continued from page 166) capacity of the unit has been doubled over previous 230 v size. For further information write: Westinghouse Electric Corp., P.O. Box 2099, Pittsburgh 30, Pa.

Eductor Proportions Wetting Agents Into Hose Lines



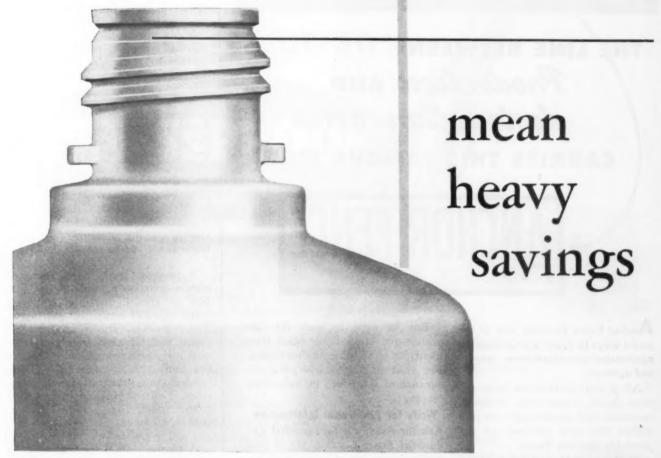
Wetting agents and foam liquid can be proportioned into fire hose lines by means of an eductor, the product of Rockwood Sprinkler Co., 8 Harlow St., Worcester 5, Mass. The eductors can be used anywhere in the run of hose, subject to the recommended length of the hose between the eductor and nozzle not exceeding 100' and operating pressure being between 75 psi to 175 psi at the eductor outlet. The eductor is provided with a female swivel coupling on the inlet side and a solid male connection on the discharge side. A pick-up tube prevents flow of water to the foam liquid container when the nozzle is shut off.

> Low-Price Carbide-Tipped Drill Has Simple Design

A carbide drill of simple design has been developed for drilling plastics and shallow holes in cast iron. Its initial cost is claimed to be about one-tenth that of conventionally tipped high speed steel drills. The fluteless drill consists of a shank of drill rod between 50% and 60% of the diameter of the carbide tip. The shank and tip are joined together by brazing. Due to the strength of the brazing alloy employed it is unnecessary to provide steel pockets or similar guides for the tip. Thus, besides the simplicity and low cost achieved, ample room is left for chips. Hayden Twist Drill Co., 8626 Lyndon Ave., Detroit 21, Mich., makes it in sizes from 13/64" to 11/16".

lightweight Plaxpak® carboys.





REPLACEMENT COSTS DROP SHARPLY.

The one-piece, lightweight Plaxpak carboy is unbreakable. An extensive user of chemicals for in-plant operations estimated yearly savings of \$4500 in carboy replacement costs. You can figure on a proportionate reduction.

EXPENSIVE ACCIDENTS ARE ELIMINATED.

Injury to personnel due to carboy break-

age can be expensive. You avoid such accidents—and the problems they create—with Plaxpak carboys,

PLANT OPERATIONS ARE IMPROVED.

Employees handle hazardous or expensive chemicals with new speed and efficiency, freed of worry about container breakage. Lightness of Plaxpak carboys makes them easier to truck, pour and store. Get the full story about money-saving Plaxpak carboys by writing for our quickreading brochure. Or ask to see a representative.

PLAX CORPORATION

672 FARMINGTON AVENUE WEST HARTFORD, CONN.



PLAXPAK CARBOYS ... the safe, saving way to handle bulk liquids



Production and destruction often carries this famous sign!



Anchor Fence provides one of the surest ways to guard your production against destruction by thieves, vandals and agitators.

All of your productive factors your plant, equipment, vehicles, materials and employees—are safe within the area guarded by dependable Anchor Fence.

At the same time, Anchor Fence smoothes the flow of vehicular traffic, the loading and unloading inside the yard.

But Anchor Fence keeps those who would destroy your profits outside where they belong.

But be sure to look for the orange-and-black name-plate that identifies all genuine Anchor Fence. For that name-plate is your assurance of the finest in industrial fencing.

Write for Additional Information

Ask for Anchor's fact-packed Industrial Fence Catalog. Or, if you prefer, invite one of our thoroughly informed engineers to submit recommendations — without any obligation, of course. Address: Anchor Post Products, Inc., 6615 Eastern Avenue, Baltimore 24, Maryland.

Anchor Fence

Division of ANCHOR POST PRODUCTS, Inc.

Also Noted ...

Solvay Process Div., Allied Chemical & Dye Corp., 61 Broadway, New York 6, N.Y., is introducing to the trade a 25 lb. retail consumer package of floke colcium chloride. The package is polyethylene-lined and equipped with a tube for pouring and for reclosing so the unused portion can be protected for storage. Front of the package carries information on principal uses of the product.

A power buffing tool has versatile uses in industry in plant maintenance and the production department. Magic Chemical Co., Brockton, Mass., originally developed it to condition conveyor belts for repair coatings. Tests have shown it suitable for many other industrial uses such as giving a rough or matted surface to materials, removing imbedded rust from steel surfaces, etc.

Skidding on icy roads is less likely to happen to the automobile driver due to a new device called the "Grip King." Developed by the Tenna-Lite Corp., 312 W. Illinois St., Chicago 10, Ill., it is essentially a road sander that develops a layer of processed grit in the paths of rear wheels for instant traction. A switch on the steering post electronically controls the appliance.

A process for the hard-coating of aluminum makes possible the application of this lightweight metal to many types of equipment and parts. The process is a special anodic treatment that creates an amorphous coat of aluminum oxide about ten times thicker and up to 100% harder than other anodizing processes. Full information can be had from: Anodic Inc., Salt St., Bridgeport 5, Conn.

A plastic sealant for impregnating pressure costings is announced by Tincher Products Co., Sycamore, Ill. It will permanently seal excessive "leaker" and even "squirter" castings according to Tincher engineers. The effectiveness of the seal is due to its penetration properties which enable it to saturate all porous areas. Upon hardening, there is no loss from evaporation.

The life of carbide cutting tools can be prolonged by a new sharpening method which gives finer-(Please turn to page 172) U. S. DRILL HEAD COMPANY SAYS . . .

HEAT TREATING ELIMINATED

- REJECTIONS REDUCED
- WEARABILITY INCREASED AND

 COSTS CUT 50%

TRESSPROOF®

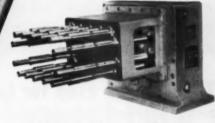
SEVERELY COLD-WORKED, FURNACE-TREATED
STEEL BARS

• Spindles for these multiple drill-heads must be straight. Formerly heat-treated, straightening was a difficult, costly job, and rejections were high.

Now produced from STRESSPROOF, heat-treating, with its attendant straightening problem, is eliminated; machinability is increased 25%; wearing properties have been improved; and costs reduced 50%.

STRESSPROOF makes a better part at a lower cost.

STRESSPROOF's value to manufacturers like U.S. Drill Head stems from its unique combination of four qualities in the bar: (1) Strength, (2) Wearability, (3) Machinability, and (4) Minimum Warpage. Yet STRESSPROOF costs less than other quality cold-finished steel bars. It comes in cold-drawn or ground and polished finish.



Multiple spindle, made by U.S. Drill Head Company, Cincinnati, Ohio, uses spindles made from STRESSPROOF.

SEND FOR ...

Free Engineering Bulletin
"New Economies in the Use
of Steel Bars"



La Salle Steel Co. 1432 150th Street Hammond, Indiana

Manufacturers of the Most Complete
Line of Carbon and Alloy Cold-Finished
and Ground and Polished Steel Bars in America.

NEW SOLNUS OILS GIVE YOU MORE LUBRICATION PER DOLLAR

New Multimillion-Dollar Plant
Producing Better General Lubricants
at Moderate Prices

They can be used for lubrication of plain bearings, antifriction bearings, linkages, slides, cams and gears; in gear boxes, hydraulic systems, circulating systems, industrial diesel engines, compressors.

They can be used for longer periods because they resist oxidation, prevent rusting and corrosion.

They can be applied by any method used in general lubrication.

They have extremely low carbon content. In compressors, for instance, any carbon that does form is soft and fluffy, is easily blown off, does not build up.

For technical bulletins, call your nearest Sun office or write Sun Oil Company, Philadelphia 3, Pa., Dept. PG-10.

SUN OIL COMPANY



PHILADELPHIA 3, PA. + SUN OIL COMPANY LTD., TORONTO & MONTREAL

(Continued from page 170)

finishes. The method depends on the use of a dual wheel consisting of 120 grit silicon carbide vitrified bond outer grinding wheel for dryfinishing grinding and a phenolic resin diamond lap insert for diamond lapping. Method was perfected by Penn Scientific Production Co., 5941 Alma St., Philadelphia 24, Pa.

Rubber gloves, claims General Scientific Equipment Co., 2700 W. Huntingdon St., Philadelphia 32, Pa., can be preserved for longer wear by means of a glove dryer. Made of aluminum throughout, it is provided with a drip pan and draining faucet. The complete unit is mounted on a sturdy wooden base in mahogany finish for easy attachment to wall. There are two models for 6 and 24 pairs.

A mastic flooring to meet the demand of modern industrial traffic requirements has been developed by Flash-Stone Co., Inc., 3723 Pulaski Ave., Philadelphia 40, Pa. Trade name "Liggite," this industrial floor has a binder which increases stability without loss of strength. It is highly resistant to all traffic loads and to attack by grease and oil but will be affected eventually by petroleum products.

Misty goggles, glasses, masks, windows, windshields etc., should be a thing of the past due to a chemically treated mistproofing and cleaning cloth developed by Hygiene Research Inc., 684 Broadway, New York, N.Y. Merely wiping glass or transparent plastic with the cloth is sufficient not only to clean but also to mistproof it from a few hours to two weeks depending on conditions.

Yale Materials Div., the Yale & Towne Mfg. Co., Philadelphia, has developed a hydraulic scoop attachment which provides for easy handling of free flowing bulk materials. It can be quickly attached to or removed from any of the company's fork trucks and provides an easy way of picking up, transporting and dumping free flowing bulk materials. It is actuated by a double acting cylinder.

Industries in which it is dangerous to weld because of fire hazard will be glad to learn of an adhesive which the makers, Miracle Adhesives Corp., 214 East 53rd St., New



You get MORE with Barreled Sunlight Paint

What does it matter if Barreled Sunlight might run a few pennies high per gallon? Look what you get in

return.

More per gallon. Barreled Sunlight takes more thinner ... as much as one gallon of thinner for every five of Barreled Sunlight. And even with all this thinner, Barreled Sunlight's superior hiding power gives you more square yards with solid coverage per gallon. You save by buying less paint.

More per man hour. With Barreled Sunlight, your maintenance painters work faster. The easy flow, freedom from sag, and extra coverage with every brush stroke

coverage with every brush stroke cuts your labor costs...most important, because labor usually represents at least 80% of the total cost of the job.

More per dollar. In addition to savings in paint and labor on the original job, Barreled Sunlight saves you money over the years. A Barreled Sunlight job keeps its fresh-painted look longer. You repaint less often... and a Barreled Sunlight repaint job is usually a one

coat job.

Look into it. With an on-the-wall test, a Barreled Sunlight representative can show you how much more ... per gallon, per man hour, and per dollar ... you can get with famous Barreled Sunlight. Write and he'll call.

BARRELED SUNLIGHT PAINT COMPANY 18-J Dudley St., Providence 1, R. I.

Barreled Sunlight Paints

> In whitest white or clean, clear, wanted colors, there's a Barreled Sunlight Paint for every job

For over half a century those who know the best in paints . . . for all types of buildings . . . have strongly insisted on famous Barreled Sunlight

PACKAGING IN *JIG* TIM



cut packaging costs 25with GENERAL ENGINEERED CONTAINERS

Packaging six porcelain insulators in a bulky nailed crate was a time-consuming two-man operation at Victor Insulators, Inc., Victor, New York. Introduction of the sturdy, lightweight General Wirebound Box and the jig-assembly system shown here enabled Victor engineers to reduce packaging to a quick, efficient, one-man operation, cut packaging costs by an estimated 25%. And their customers benefited by the substantial saving in on-site uncrating time-now a matter of seconds, thanks to General Wirebound Design.

This is only one example of hundreds of packaging problems solved each year—at a saving—in General Box Company's two fine Industrial Packaging Laboratories. General packaging experts stand ready to help you cut costs, too. Write today for complete details.

Find out how other manufacturers are cutting packaging costs. Write for your free copy of "The General Box."



1843 Miner Street

Factories: Cincinnati; Denville, N. J.; Detroit, East St. Louis, Kansas City, ANY Louisville, Milwaukee; Prescott, Ark.; Sheboygan; Winchendon, Mass.; General Box Company of DES PLAINES, ILL. Mississippi, Meridian, Miss.; Continental Box Company, Inc., Houston, Texas.

ENGINEERED SHIPPING CONTAINERS FOR EVERY SHIPPING NEED

- Generalift Pallet Boxes Corrugated Fiber Boxes
- Cleated Corrugated and Watkins-Type Boxes
 Wirebound Crates and Boxes

(Continued from page 172)

York, N.Y., claim has holding power comparable to that of metal welds. It can be made to set in 10 minutes and only clamps are required for application. It attaches metals without heat or electric current.

Business machine manufacturers will be interested in a miniature business machine motor announced by the Specialty Motor Sub-Dept., General Electric Co., Schenectady 5, N.Y. The motor is available in ratings of 35-milli-hp and 1/20 hp, 3450/2850 rpm, 115 v and 60/50 cycles. It is expected to meet the size, voltage and frequency requirements of 95% of the business machine industry.

Self-adhesive aisle markers will contribute to plant safety. Made by W. H. Brady Co., 727 W. Glendale Ave., Wis., they are of durable, colorful plastic, backed with a heavy duty, presure-sensitive adhesive. They are stocked in four bright colors that command attention even in poor lighted areas: caution yellow; fire red; safety green and neutral white. They stick without moistening.

After thorough testing, the Burgess Battery Co., Freeport, Ill., has introduced a new flashlight battery for heavy industrial use. It is claimed that in tests the Burgess battery gave 27% more service than the next leading brand tested. The battery is sealed in steel and plastic.

One ordinary individual can upend a drum without danger of slipping or straining by means of a new drum handling device. The lifting tension of the device clinches securely to the drum, avoiding dangerous slips and rolls. The convenient grip and multiplied lifting leverage, according to the makers, Weldrite Co., Dept. 18, 6610 Pennsylvania Ave., Cleveland 3, Ohio enables one man to do two men's work.

Hardened steel as hard as 68 Rockwell can be drilled without annealing by means of an improved drill, the product of the Tempered Steel Drill Co., 3610 Superior Ave., Cleveland 14, Ohio. The drill has three wide lands which keep it from floating. Oversized holes are eliminated due to the greater bearing surface of these wide lands. A heavy center section overcomes drill breakage.

Office Equipment and Supplies section of PURCHASING Magazine

OCTOBER, 1953

Executives' offices in the new aluminum building of the Aluminum Corporation of America, Pittsburgh, are models of modern design combined with the harmonious blending of tasteful interior decorating.



Time Is Money

By RAY R. EPPERT, Executive Vice President Burroughs Corporation

an address before the National Office Management Association Annual Conference Boston, Massachusetts—May, 1953

BUT let me emphasize the word evolution. If we think back to any of the significant developments that have come to influence our lives in this century, we must grant that a considerable interval has passed between their introduction and the time they became available to us all. Television did not suddenly burst into our living rooms. The word was long known before it was possible to drop into a store and buy a set. Without meaning to inject a discouraging note, I submit that we must expect a similar interval to elapse before electronic office equipment can be made suitable for general use. It seems to me that we might well regard those instances where electronic principles have been introduced into office equipment as a "pilot" if not experimental operation. In each case, it has been built at considerable cost to do a specific job-either because that job was so enormous that it could not be as economically done in any other way, or because there was a strong likelihood that such a development would spur progress toward a more general product.

Automatic Office Machines

Of course it is today possible to build an automatic machine to handle almost any office job—providing only that the customer is willing to pay for it. Many companies have been approached by large firms with the request to build a machine for a highly specialized task, no matter what the cost. In certain instances, if I may speak for my company, we have felt that

In the first part of this article, Mr. Eppert dealt with the development of office operations and the influence these developments had in the progress of office procedures and equipment. Now, he points out the absolute necessity of understanding office objectives and obtaining the maximum benefit from the correct machines. Time is money, he points out, and modern office equipment is directed at saving time. The proper machines, in the hands of a well trained operator and carefully maintained to peak mechanical efficiency is the ultimate in protecting costly investments and in assuring a smooth running and efficient operation.

the work required would assist us in making equipment suitable for general use and have taken on the job. For example, we are now building one electronic computation device which will cost the customer two and one half million dollars. Where specialized jobs will not further the basic development program, we feel obligated to decline. We are not alone in our belief that there are simply not enough engineering hours to spare on an isolated project that would get us no nearer our ultimate goal of putting electronic and other scientific techniques to use in the solution of the bulk of accounting problems-filing, sorting, handling, communicating.

Herein lies the greatest challenge of all. And while we feel that the industry as a whole is making the most inspiring kind of progress toward that objective, it should be stressed that the introduction of these new techniques will come about gradually. Equipment developed in this new art must be able to justify itself on a cost and savings basis or it will not achieve the necessary objective. It must permit methods and procedures which will be acceptable and compatible with accounting, reporting and auditing requirements. It must be reliable in performance so that necessary deadlines in the office can be met. To be entirely practical, it must not necessitate the utilization of high priced technicians. You are not adding just another clerk on your payroll when you employ a man with a Masters Degree in Mathematics or a Physicist.

While we look forward optimistically to our ultimate goals, the Office Equipment Industry is not neglecting the job at hand. No office can afford an unproductive operation while waiting for a panacea. We are interested in the best office tools available today. It is obviously un-

Remington Rand Methods News



Exclusive Features of Printing Calculator Offer Top Economy

Frequently a company will purchase both a Calculator and an Adding Machine when the demand for one or the other is negligible. This original investment can often be cut by as much as \$400 by purchasing a Remington Rand Printing Calculator.

2 machines in 1, the Printing Calculator provides automatic division, short-cut multiplication, instant addition and subtraction. Every figure is clearly printed on the tape to assure a permanent record for checking or reference. Touch-type operation of the 10-Key Keyboard makes operator training easy—assures maximum figuring speed. Send for booklet AC639. Use the coupon provided.



Complete Visible Systems and Filing Equipment

Robot-Kardex saves space, work and money. For instance, it can increase the output of a \$2,000-a-year posting clerk by 30%. A gain of \$600 per year. Such tremendous savings are possible because Robot-Kardex is completely mechanized to bring visible records to the operator. For complete details circle KD505 on the coupon.

For all filing needs we have a complete selection of Vertical Filing Cabinets in every size, type and grade. To save operating costs in maintaining large card records, investigate new "push-button" Convé-Filer which speeds posting and reference by as much as 30%.

Some Purchasing Agents Profit by Dealing with Manufacturer of Complete Line

In the office equipment, machines and supplies field, Remington Rand's completeness of line prompts the slogan, "For your needs, we have no reason to recommend anything but the right machine or system. We make them all!"

In addition, these products are sold direct to you through trained and experienced Account Representatives. These experts can often save your company time, trouble and money by making sure that the items requisitioned are best suited to their intended uses and by demonstrating the products which will most efficiently fulfill your exact requirements.

A few of the thousands of Remington Rand products, and their applications to business-record-keeping are shown on this page. Your Remington Rand Account Representative will be glad to discuss these and any others with you, at your convenience.



3 Basic Typewriters Fill Every Typing Need

Electric, Standard or Noiseless-all Remington Rand Typewriters-provide the ultimate in clean, readable printwork, efficient performances and easeof-operation. The Electric may be purchased with various styles of type as well as with a 10-Key Decimal Tabulator for financial or statistical work. The Remington Standard offers Tested Tempo Touch as well as 2 extra keys and 4 extra characters at no extra cost. If you seek typing perfection with quiet, the Noiseless, an exclusive Remington Rand product, is your answer. Regular model or special application machine, there's a Remington Typewriter for your every need. Write for complete details.

Free Analysis & Recommendation

Remington Rand will be glad to analyze your present setup and to recommend money-saving systems tailored to your Purchasing Department needs. For the basic procedures around which these systems are built, send for Catalog X1202 on the Coupon.

One System Out of Many Is Right For Your Files

System is the key to efficient filing. Remington Rand File Analysis Experts are always available to analyze your filing problem and to recommend a system to solve it. No system, however, is better than the supplies which make it work. Exclusive Remington Rand units such as FlexiFile Classifile, and Kompakt Fasteners reduce filing costs, increase filing speed and efficiency. For all the details send for Filing Supplies Catalog LBV385.

necessary for me to review the wide range of equipment at our disposal. I know that most of you have made extensive investigations of the products of the fine companies in the industry and are already familiar with those best suited to your individual needs.

But I would like to make a few suggestions about the purchase and use of office tools. It would be superfluous today to point out the advantages of machine methods over manual methods. Except in very small firms, it is not so much a question anymore of replacing manual with machine methods, but rather replacing a less efficient tool with a more efficient tool. Again, it gets back to applying the factory proved philosophy of obsolescence. When we know of a more efficient tool, no matter how good or recently acquired the old one may be, investment in the new one is no matter of luxury. The only way that office costs can be reduced is to see to it that office personnel are using properly the best tools available.

Price And Cost

It seems to me that we must be hard headed and realistic in distinguishing between price and cost. The price of equipment in most instances is not very important, but proper cost is essential. Let me state it this way-the price is the investment which you will carry as an asset, whereas the cost is determined by the amortization schedule and the savings effected by the equipment. Whenever the latter exceeds the former, there is no cost whatsoever, and the main question is how large is the profit. To achieve maximum results in your office, it is essential to make equipment decisions on the basis of return on the investment rather than on the amount of the investment. Speaking bluntly, the highest priced machine may cost the least. Only an individual analysis will disclose all the

Perhaps I sound like a salesman. But I hope I may be forgiven some enthusiasm about the capacities that are built into our industry's various products these days. But I would be derelict if I neglected to emphasize a word of caution. I'm sure my colleagues in this industry would all agree that office tools, indispensable as they are to optimum productivity, are not alone the answer to your problems. In the final analysis, their value must depend on how they are

used. To serve their purpose, tools must be made an integral part of a well conceived system. Unless they are, you are bound to be disappointed in them.

Let me urge you to cast a cold and calculating eye around your present office set up. Ask yourself this question: "Will the circumstances you see allow tools to increase your office productivity?"

Here are a few specific examples of what I mean.

Save Time

Time is money. It is the biggest expense on your operating statement. Now, one of the purposes of office equipment is to save costly time. This equipment leaves the factory with the capacity to do so. From there on, however, - it is up to you. If a machine is to earn its keep, machine operation cannot be a "stop and go" affair. But only you can make the provisions that will keep it in continuous operation. Only you can insure a minimum of interruptions. If machine time is to be wasted by delays in preparing the required media, delays while the operator refers to other sources, delays from mechanical breakdowns owing to inadequate maintenanceunder such circumstances mechanization will not prove to be a sound investment.

I think that most of us have learned the hard way how important the human factor is. I want to emphasize that the finest machine can only be a costly disappointment in the hands of a poor operator. I mentioned earlier that we have been able to reduce materially the training requirements for many types of machine operation. That is true. Nevertheless, adequate training-whatever it may be on each machine job-is still an essential ingredient for successful mechanization. No improvements in equipment will ever obviate the necessity for meticulous attention to such matters as personnel requirements and good supervision. Of equal importance is a distribution of the work load and working conditions that will reduce fatigue-and its consequent errorsto a minimum. Until all these considerations have been taken care of. office tools cannot be expected to produce the maximum dividends.

Properly speaking, office work cannot be regarded as something fixed, or static. Output must be adapted to the changing needs of management and the activities which

the office serves and supports. Yet, there is so much to be done in a modern office that the temptation always exists to think of paper work as an end in itself. How often we find that reports, records and media have been continued merely out of habit long after the need for them has ceased. More often, perhaps, they have been continued in their original format when minor changes would have kept them in tune with the times and rendered them really valuable. Here, then, is another reason for caution before investing in office equipment. Why mechanize a job that need not be done at all? Obviously, office tools are little more than an expensive luxury when their output is not serving a worthwhile purpose.

Machinery and other office equipment cannot be considered apart from methods, procedures, media, the flow of work, training and personnel. Upon these factors, and others of a like sort, the capacity of office tools to serve you depends.

Maximum Efficiency

Concerning equipment you may have now or are considering for the future, I would like to emphasize two considerations:

The first refers again to the matter of time. In many phases of office work, as you know, paper handling is a major time consumer. You should therefore make sure, it seems to me, that the media you use are designed for maximum efficiency in the machine operation. It has often proved true that unit forms or better index systems have greatly enhanced the ultimate productivity of office tools.

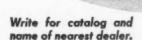
The second consideration concerns maintenance, to which I alluded briefly before. This highly important subject warrants more than a word in passing. It is of course true that modern office machines are sturdily built for long and reliable use. But like anything mechanical, they cannot be expected to function indefinitely without reasonable care. Indeed, it strikes me that the familiar slogan about an ounce of prevention never had a sounder application than it does to office equipment. The more we rely on tools to streamline the office operation and make it more productive, the more important it is that we insure their continued operation through the right kind of preventive maintenance. Naturally, there is a cost angle to be considered here. Never-

(Please turn to page 182)

STEEL OFFICE FILDMITTIES AN AND DEALER NEAR YOU!

there's more real dollar-for-dollar value in ASE office furniture. You'll find countless product advantages exclusive with this complete high-quality line of desks, chairs, files and office equipment.





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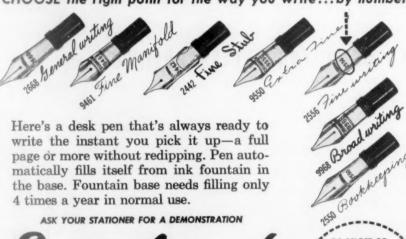
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CHOOSE the right point for the way you write...by number



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The Esterbrook Pen Company of Canada, Ltd.
92 Fleet St., East; Toronto, Ontario



ONLY A FEW OF THE MORE POPULAR POINT STYLES SHOWN

Time Is Money

(Continued from page 178)

theless, if we devoted the proper care to selecting machines, if they have been well integrated into our total office operation, the cost of preventive maintenance is small compared to the cost of a major breakdown. In this case, it is more than likely that expensive repairs will be further aggravated by a lengthy interruption in the work flow. To economize on maintenance, therefore, is to be penny wise and pound foolish. Remember that most office machines, particularly those dealing with values, are either 100 percent right, or they are 100 percent wrong. There is no possible compromise.

In our common struggle to maintain a competitive position, you who are responsible for office management face a difficult challenge. The heavy requirements already made on your departments become more demanding every day. What is more, competition itself, once the concern primarily of marketing and manufacturing, is now a grim reality in the office as well. Like it or not, you, your secretary, every machine operator and every clerk competes with his or her opposite number in each rival business enterprise. Far from the least of your many worries is the necessity for you to see that they do so competently and economically.

This requires, I submit, a diligent and continuing study of all the factors which influence productivity. Your approach must always be objective. In a way, you should be, I feel, a little like the automotive engineer who watches the unveiling of his latest car, pleased with what he has achieved-but already somewhat discontented-probing for improvements which will make the next one even better. One of the factors that will claim your constant interest is-and must be-mechanization. For in the end, it is only through the wise use of the right tools on all fronts that we can remain competitive. But as I said before, be sure of those words "wise" and "right." Mechanization for mechanization's sake will be of no help. Protect your investment in office tools by purchasing only what you know is right for your particular situation. And as you study the overall office operation-be like that engineer: never be entirely satisfied.

NOW! THE MOST EFFICIENT...ECONOMICAL WRITING TOOL EVER MADE FOR BUSINESS AND INDUSTRY

NOTHING TO PRESS. TURN OR FILL IN NEW VELVET BALL PEN-CIL

Here's the simplest writing instrument you've ever seen. No filling mechanism, no ink bladder, nothing to push or click. You never have to stop to fill the Velvet Ball Pen-cil. It's already filled with a remarkably long-lasting ink supply.

PRECISION INK-CONTROL

The Velvet Ball Pen-cil has a brand new kind of precision ink-control so it will never leak, blot, flood or smear. There's no chance of ink-stained clothes or fingers.

BETTER RECORDS...LOWER COSTS

It's so light, so perfectly balanced, that it offers new writing ease and comfort. Secretaries find it faster, smoother for dictation. It gives more legible carbon copies. It's ideal for quick memos and clear figure work in accounting and bookkeeping departments. Everybody writes better with the Velvet Ball Pen-cil.





More legible records

BANKER-APPROVED INK IN **NEW VELVET BALL PEN-CIL**

WON'T SMEAR, BLOT OR FADE

Only the finest quality permanent ink-approved by bankers and lawyers—is used in the Velvet Ball Pen-cil. This miraculous ink won't smear, won't blot, won't fade. It lasts longer than the paper itself.



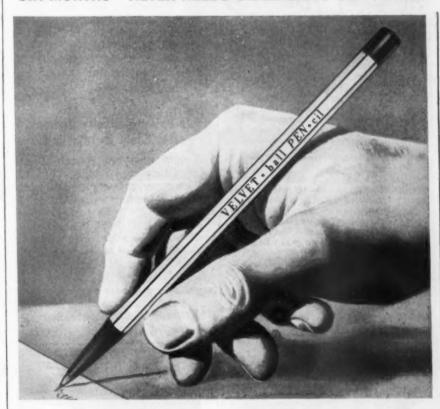
Approved for checks, all legal writing



Permanent ink never smears or blots

GUARANTEED BY MAKERS OF VENUS AND VELVET PENS AND PENCILS

VELVET BALL PEN-CIL WRITES 2000 WORDS A DAY FOR SIX MONTHS—NEVER NEEDS SHARPENING OR FILLING!



Here's a whole new concept in writing that promises every department in business and industry greater efficiency, better and longer-lasting records, lower costs.

The new Velvet Ball Pen-cil com-bines the best features of both a wood pencil and a non-smear ballpoint pen!

WRITES ANYWHERE...ANYTIME

The Velvet Ball Pen-cil saves time because it's always ready to write perfectly. There's no point to break, so it never needs sharpening, never grows shorter. You never have to stop to fill it. There's nothing to press, turn or click, not a single moving part to get out of order.

It does better work . . . writes faster, easier and smoother. It comes already filled with a long lasting sup-

ply of permanent, banker-approved ink that can't smear, leak, blot or fade ever.



The new Velvet Ball Pen-cil promises more writing



mileage per penny. Actual tests have proved it writes an unbroken line over 2 miles long-without stopping. Every Velvet Ball Pen-cil will write over ¼ million words—up to six months writing 2000 words every working day.

FOR EVERY DEPARTMENT

Here's a single writing tool that lets you give secretaries, bookkeepers— everyone from the office boy to top executives—the handiest and best instrument for his individual writing needs.

Economize and buy Velvet Ball Pen-cils by the dozen in easy-to-store dozen-packs. Specially designed model for business use has no clip or protector so employees won't carry it away. It is available with either blue or red ink. Order from your commercial stationer today.



TRY THE VELVET BALL PEN-CIL YOURSELF. Write on your office letterhead for a free sample of the Velvet Ball Pen-cil to: Dept. P/10

American Pencil Company, Hoboken, N.J.



CORBIN Mail Handling equipment puts new life into sluggish office mail delivery —saves time—reduces cost! Used in the majority of U. S. Post Offices and in mail rooms of leading businesses, colleges, universities, hospitals and other institutions.

CORBIN'S facilities and more than 50 years' experience combined, are your assurance of quality equipment at low cost. We will help you choose equipment to meet your requirements. All Corbin Mail Handling products are constructed of selected hardwoods. Joints are dovetailed and glued. Surfaces are smooth-sanded and lacquered or varnished. Shipped to you assembled, complete with hardware.

Mail Sorting Table Capacity and arrangement as required to meet your needs.



CORBIN OFFERS WIDE VARIETY OF MAIL ROOM EQUIPMENT

- · Work Tables
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- * Bulletin Boards
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Facit, Inc. Opens New Office For West Coast Operations

Karl Siewert has been named resident manager for the newly created West Coast office of Facit, Inc., distributors of Swedish-manufactured Facit calculators and Odhner adding machines.

The new West Coast office is located at 114 Sansome St., San Francisco. Operations will include distribution and servicing of Facit products to Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming and Alaska and Hawaii.

One-Pound Capacity Compact Postal Scale Is Introduced

A new one-pound capacity postal scale, guaranteed accurate to one-half an ounce, is being introduced by Pelouze Manufacturing Company, Evanston, Ill.

Measuring 4" high by 3½" deep by 2" wide, the scales will be known as the "Princess," Model N-1, in the "N"-line series of spring postal scales. The dial is easy to read with large, bold numbers that show correct weight and mailing cost for First Class, Air Mail, Merchandise, and Printed Matter.





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A much-needed piece of correspondence, a valuable plan, blueprint or estimate. Probably not lost—just misplaced.

Old fashioned filling systems are inadequate in the modern, complex office or factory. But with EZYINDEX Tabs, letters, reports, and plans can be

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quickly, easily. Do away with the irritations and time lost in hunting for office or factory written material.



With EZYINDEX Tabs you can make your own index system for binders, books, filing cabinets, blueprint drawers. Color coded EZYINDEX Tabs are made of heavy, non-flammable acetate; title areas can be used over and over again.

Sold by stationers all over the country. Ask for EZYINDEX Tabs, the only tab with the money back guarantee of perfect quality... or write for a sample EZYINDEX Tab and the name of your local EZYINDEX dealer.



Addressograph-Multigraph To Build Facilities At Teterboro

A new building to house the general service operation and provide warehousing facilities is being constructed by Addressograph-Multigraph Corporation for its New York branch and Eastern Seaboard area at Teterboro, N. J.

The Teterboro site was selected because of its proximity to high concentrations of industrial, commercial and financial enterprises. General sales activities for the New York metropolitan area will continue to be directed from 329 Fifth Avenue.

Eastman Kodak Announces New Verifax Printer Machine



A new office machine for the rapid production of multiple copies of letter-size papers has just been announced by the Eastman Kodak Company. The unit, known as the Verifax Printer, is said to be a unique invention, in that three or even more copies, costing less than 5 cents each, can be made from a single matrix sheet. The copies are same-size, black-on-white duplicates of the original material and are immediately ready for use.

With the new printer, one photo-exact copy can be obtained in about 50 seconds, and three copies in 60 seconds. Copies can be produced in any office under ordinary illumination. The only service connection is a 110V outlet.

Clary Names New Phoenix Manager

Robert F. Wayland has been named manager of the Phoenix, Ariz., branch of the Clary Multiplier Corporation of San Gabriel, Calif. Mr. Wayland succeeds L. J. Wood who becomes branch manager at Dallas, Texas.





Webster — long the quality name in duplicating supplies — introduces a new improved carbon paper. This latest "Webster First" is so long-lasting, so satisfactory in use, that it's called DURA-METRIC. It has all the famous features of Webster's MultiKopy Micrometric plus qualities all its own that will save time and trouble and raise work output in your office.

These famous features:

- Webster's exclusive scale edge to measure typing lines remaining on page prevent "running over".
- Scale edge protects fingers and papers from carbon smudge.
- Webster's superior inking assures sharp clear impression.

PLUS these new features:

- Special SHURFLAT treatment on the back of every sheet.
- Added crispness and durability for easy handling, long service.

Durametric will last longer and work better. There's a weight and finish for every office need. Give DURAMETRIC a trial now! Leading office equipment dealers stock it.

FOR FREE SAMPLE, write on your office letterhead, specifying make of typewriter and number of carbons required.

F. S. WEBSTER COMPANY

7 Amherst Street Cambridge 42, Massachusetts

Small, Low-Priced Copying Machine Offered By Ozalid

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A small, low-priced office copying machine to bring the speed and savings of direct copies within easy reach of every office is being in-



troduced by Ozalid, a division of General Aniline & Film Corporation, Johnson City, N. Y.

The Ozalid Bambino is specifically designed and priced for small volume users and is only slightly larger than an ordinary electric typewriter. It will copy anything that is written, typed, printed or drawn on a sheet of transluscent paper up to 9" wide, any length. Up to 200 copies can be made per hour.

Parker Pen Opens New Plant

The new \$4,500,000 Arrow Park plant of the Parker Pen Company, Janesville, Wis., is now in full production.

This marks the completion of the company's biggest expansion program during its 64-year history and represents an increase in production capacity of some 235%.

Only manufacturing facilities will be housed in the new plant as the general offices will remain in the company's location in downtown Janesville.

IBM Releases New Sound Film On Latest Electronic Computers

A new 16mm color-sound motion picture, "Piercing the Unknown", that traces the development of computing devices up through the IBM Electronic Data Processing Machines, can be borrowed free of charge from International Business Machines Corporation, New York City.

It tells how computers can solve problems in aircraft design, ballistics, chemistry, nuclear physics and other fields of pure and applied science in man-hours instead of manyears. It also explains how IBM's commercial electronic calculators are applied to the problems of business and industry.

The film may be booked through any IBM branch office or from the Department of Education, IBM, Endicott, N. Y.

Catalog Illustrates Royal's Cabinet, Wardrobe, Chair Lines

A redesigned and expanded line of steel office storage and wardrobe cabinets has been introduced by Royal Metal Manufacturing Co., Chicago. The line, which is being manufactured in the company's Warren, Pa., plant consists of a counter-high cabinet and three double-door cabinets, each in 18 or 24-inch depths, and two single-door cabinets in 18-inch depth.

The catalog features the Royal office chair groups, including executive and secretarial models and redesigned arm and side chairs, plus ten styles of storage and wardrobe cabinets. Royal shelving and office record storage equipment is also

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Drawer-size Safe-T-Vault New Marketed By Goodfrend Metal

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A heavy steel, fire-resistant Safe-T-Vault is now being marketed by Goodfrend Metal Products Co., Chicago, Ill.

Consisting of two "inside each other" heavy gage steel boxes with a specially treated insulating material, the new Safe-T-Vault has been laboratory tested and certified to withstand up to 500 degrees of heat for one hour. The item is compact enough to be kept in a desk drawer.

Featuring a sealer strip that eliminates air leakage, the Safe-T-Vault is equipped with a cylinder lock and riveted handle. It is finished in Hammerloid baked enamel in gray, green, blue, or red.

Prominent Users of Strathmore Letterhead Papers: No. 107 of a Series



QUALITY carries the ball!

World's Champion Professional Football Team in 1945 and 1951, the Los Angeles Rams enjoy the enthusiastic support of thousands who crowd Memorial Coliseum every season. Their fine team spirit and hard, fair play have won not only a loyal following but Conference Championships in 1945, 1949, 1950, and 1951. With a roster of past and present players and coaches that reads like a football Hall of Fame, the Rams have a reputation for playing good football, exciting football, and above all, sportsmanlike *team* football.

Knowing that only the best components can make the best team, the management of the Los Angeles Rams seeks the best in every detail. The Rams put quality behind their team by using Strathmore Letterhead Papers for all business correspondence.

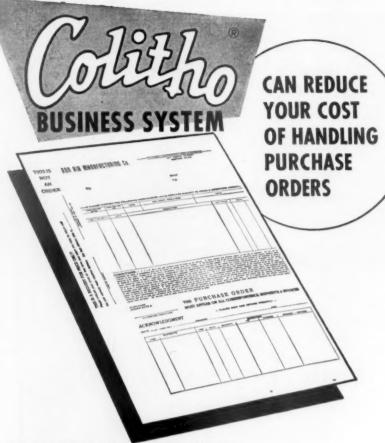
A letterhead can express the spirit and coordination of a business "team", too. A letterhead on Strathmore always says *quality*, and indicates integrity and good taste. On your next letterhead order, specify a Strathmore paper for its outstanding character and appearance.

Strathmore Letterhead Papers: Strathmore Parchment, Strathmore Script, Thistlemark Bond, Alexandra Brilliant, Bay Path Bond, Strathmore Writing, Strathmore Bond. Envelopes to match converted by the Old Colony Envelope Company, Westfield, Mass.

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MAKERS OF FINE PAPERS

Strathmore Paper Company, West Springfield, Massachusetts



Wherever paper work requires more than one legible copy, a Colitho Business System can be used to speed the operation, eliminate transcription errors, and cut clerical costs. Colitho paper offset duplicating plates, plain or pre-printed, can be incorporated in single, multiple part, flat pack or roll forms. Colitho Business Systems provide for variables and blackouts, deletions or additions. Partial information can be added at any time. All business paper work lends itself to simplification through a Colitho System.*

Regardless of the kind of business you are in, Colitho Systems offer time and money savings in purchasing, manufacturing, distributing, selling, billing and accounting. For more information, mail the coupon attached to your business letterhead.

*Where spirit duplicating equipment is used the same results can be obtained with a Columbia Ready-Master System.

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'Thermo-Fax' Duplicator Gets 9 New Nation-wide Dealers

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Nine new dealers have been appointed throughout the country for the "Thermo-Fax" duplicating machines of the Duplication Products Division, Minnesota Mining and Manufacturing Co., St. Paul.

Using a day-process, the duplicator makes exact and permanent copies of original letters, forms, invoices, charts, sketches or any other printed or written material.

The new dealers are Bodine-Bryson & Rolling, Birmingham, Ala.; Cathey Office Furn & Supplies, Inc., Dallas, Texas; Bob Ball Co., Indianapolis, Ind.; Spaulding-Moss Co., Boston, Mass.; Magna-Crest Corp., New York City; Duplicating Products, Inc., Portland, Ore.; San Diego Blue Print & Supply, San Diego, Calif.; H. S. Crocker Co., Inc., San Francisco, Calif.; and Nicholas Business Equipment, Syracuse, N. Y.

McBee Company Promotes Four To Ass't General Sales Manager

Four executives of the McBee Company have been promoted to assistant general sales managers in a nation-wide reorganization of the company's sales department.

Those named, and their headquarters, are St. Clair Bromfield, Jr., Hartford; E. H. Tunis, Los Angeles; Robert M. Reynolds, Memphis; and A. T. Craft, Columbus, Ohio.

Emeco Gorp., Manufactures New Executive Posture Chair



An anodized aluminum finished executive posture chair of modern design is now being manufactured by Emeco Corporation, Hanover, Pa.

This new chair features a hair-pin back support for additional comfort and has the seat and back upholstered in a wide range of plastic coated or popular woven fabrics in a variety of colors. The arms of the chair are deeply padded for extra comfort.

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Emeco's new chair's seat is 203/4" wide, $17\frac{1}{8}$ " deep and $4\frac{3}{4}$ " thick. It is adjustable from $18\frac{1}{4}$ " to $21\frac{7}{16}$ " from the floor. The back is adjustable from 131/2" to 161/2" from the seat. The base is 261/2" wide.

Simplawheel Motorized Card File Adaptable to Many Jobs



Simplawheel, a new motorized card file of a suspended-cradle wheel type was recently announced by Wheeldex & Simpla Products Inc., White Plains, N. Y., and shown to the public for the first time at the NOMA Business Show in Boston.

It is particularly adaptable to applications requiring large forms and carries existing records or materials without recopying or alteration.

The suspended cradles are fully and automatically stabilized and travel in a true circle. The records ride, unattached, in removable cradles or trays. These cradles or trays are brought into the operator's view by the touch of a switch. Capacity ranges from a hundred to several thousand linear filing inches per machine.

1 1 1 Maso Introducing New Royal Elevator Stand

A new, heavy duty, portable, Royal Elevator Stand, that provides strong, safe support for the heavier office machines, is now being introduced by Maso Steel Products, 81 W. Van Buren Street, Chicago 5, Ill.

This new Royal Stand No. 1795-C, is equipped with four steel cups attached to two adjustable steel channels that accommodates most office machines. The feet or legs of the office machines are easily, quickly, attached to the cups and channels for rigid safe support.

Further details and a new catalog of Maso's complete line of office machine stands may be obtained by writing to the company.

A New Translucent Master Paper

THAT GIVES YOU CLEANER, SHARPER COPIES ... Much Faster Translucent Master Papers

Gilbert Translucent Master Papers have been carefully engineered to give you best results from your direct copy machine. These papers have excellent natural translucency which combined with their special blue-white color allows the light to transfer the material to be copied at a much faster rate.

For Birect Print Copy Machines

The new cotton fibre content of Gilbert Translucent Master Papers provides the strength lightweight papers must have to stand up under erasures and continued handling. Then, too, they offer exceptional cleanliness-all-important to accurate copying. Why not let us send you samples for your own test?

Send Coupon for Free Test Kit

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Please	send me test kit of Translucent Master Pap	pers.	GILBERT
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City,	State		

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RR. WISCOUSIE



It's the new Morris miracle SAFE-T-SET with the exclusive safety feature. Tip it...tilt it...turn it upside down. Won't spill. Won't leak. It's Puddle-Proof! The Morris SAFE-T-SET belongs on every office desk. Saves soiled clothing, spoiled tempers. Handsome modern design in your color and the pen with a point in your favor, a Morris hard-tip point. Will hold full two-ounce ink supply and built with office rough treatment in mind. The new Morris puddle-proof SAFE-T-SET is manufactured by the foremost name in the field of matched desk top equipment. Your stationer can supply you. See him today.

BERT M. MORRIS CO.

8651 WEST THIRD STREET LOS ANGELES 48, CALIFORNIA





Here's the most convenient, most economical eraser in decades! Cylindrical stick eraser encased in attractive transparent plastic holder, is usable down to the last fraction of an inch! Holder cap unscrews so eraser can be moved outward. Won't roll off desks.

HANDY, POCKET-CLIP STYLE FOR GENERAL USE. BRUSH-WHISK STYLE FOR TYPISTS

Red rubber for erasing pencil writing and carbon copies. Gray rubber for erasing ink writing and typewriting. Refills.

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Correct Mistakes in Any Language

World's Foremost Eraser Specialists

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You are missing in every issue of PURCHASING seven services that would cost hundreds of dollars if bought separately—

- 1. Washington Report for Purchasing Agents
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- 3. Price, Production, Inventory Statistical Analysis that help you foretell price changes
- 4. Inventory (illustrated) of new products
- 5. Forms that lubricate purchasing department operation
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So that I will receive PURCHASING without delay each month, and in order that I may keep and clip it, send it to me personally as noted below—\$4 for one year in U. S., U. S. Possessions and Canada; elsewhere \$10 a year.

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Company	
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KOPPERS POLYSTYRENE

√ LIGHT WEIGHT-

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specific gravity range 1.04-1.06 means more pieces per pound. It is ½ the weight of aluminum.

V DIMENSIONAL STABILITY-

ability to retain its dimensions under varying temperatures, humidity and load conditions.

V UNLIMITED COLORS-

Koppers Polystyrenes are made in crystalclear transparent or in any desired color. Color-matching equipment of the latest design assures accurate matching of colors.

CHEMICAL RESISTANCE-

resists all concentrations of most acids and alkalies.

V ELECTRICAL PROPERTIES-

highest in dielectric strength, lowest dielectric constant, lowest power factor of all rigid thermoplastics.

V RELIABLE UNIFORMITY-

strict control over all raw materials, plus a unique production process, enables Koppers to make polystyrene of unequalled uniformity.

V REPRODUCTION OF MINUTE DETAILS-

easy moldability permits exact reproduction of intricate surface patterns for decorative effect or copying in miniature.

V NON-TOXIC-

perfectly safe for applications which bring it in contact with food and liquids since it will not affect them in any manner. Hard, non-porous surface can be easily and thoroughly cleaned.

V NON-SHATTERING-

accidental breakage does not produce dangerous slivers or sharp edges capable of cutting.

V PLEASANT TO THE TOUCH-

smooth surfaces of Koppers Polystyrene do not irritate the skin or nerves, give a pleasant, "warm" feeling when handled.

√ LOW COST-

no other basic material has the unique combination of desirable characteristics inherent in Koppers Polystyrene at such low cost. Uniform high quality assures a minimum of rejects and additional low unit costs.

Write for further information on Koppers Polystyrenes and Modified Polystyrenes.

KOPPERS POLYSTYRENES

- Type 3 General Purpose Polystyrene
- Type 7 Improved Heat Distortion Temperature
- Type 8 Highest Heat Distortion Temperature
- MC-185 High Impact, Lowest Water Absorption Rate
- MC-301 High Impact, Improved Heat Distortion Temperature
- MC-305 High Impact, Easy Flow
- MC-309 High Impact, Highest Heat Distortion Temperature
- MC-401 Medium Impact, Improved Heat Distortion Temperature
- MC-405 Medium Impact, Easy Flow
- MC-409 Medium Impact, Highest Heat Distortion Temperature



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G

AMONG THE ASSOCIATIONS



Bristol Brass President Outlines Five Steps for Business Confidence at Philadelphia

Roger E. Gay, president of The Bristol Brass Corporation, urged the members of the Purchasing Agents Association of Philadelphia in an address, recently, to undertake five major steps "to build confidence in business and businessmen in Philadelphia, as members of this organization and as responsible executives of your own companies."

The five steps he outlined were as follows:

- The tradition of public service to city, county and state governments.
- 2. Participating in the affairs of the community.
- Conducting their company so it will be a good place to work and a positive force for good.
- Providing leadership in building public confidence in everything you and your organization represents.
- Talking in terms that people will understand.

"We have an unprecedented opportunity to serve the people of the nation well," said Mr. Gay in talking about the responsibility which rests with the leadership of industry under the present administration. "We know from our experience in peace and war, that the genius of America is our ability to produce a large quantity and variety of goods, of high quality, and to distribute them efficiently. If there has been any lag, it has been in the development of our human relations and our methods of communicating ideas to one another rapidly and effectively.

"In our contemporary civilization it is not enough just to be good you must demonstrate and tell people that you are good and are a positive force in society for the

betterment of all," said Mr. Gay.

"Business has been inarticulate for too long. Business has been talking in terms that only businessmen appreciate. Business has to tell its story in simple terms that mean something to most people. This has to be done concerning profits, wages and taxes.

"People have to realize that more production means more jobs, better wages, increased security. You and I have the obligation to show those factors that hinder or help production, that make the difference between profitable, going enterprise, or a business that slides down hill and throws people out of work. And we must demonstrate the relationship between a going business and legislation that will enhance and not cripple industry," he told the purchasing agents.

Carolinas-Virginia Association Holds Two-Day Meeting In S. C.

A two-day meeting at the Ocean Forest Hotel, Myrtle Beach, S. C., set the stage for the coming activities of the Carolinas-Virginia Purchasing Agents Association.

Forums, motion pictures, and addresses provided the main part of the association's activities. Social hours, golf tournaments, and dinners offered periods of relaxation during the tightly scheduled meeting.

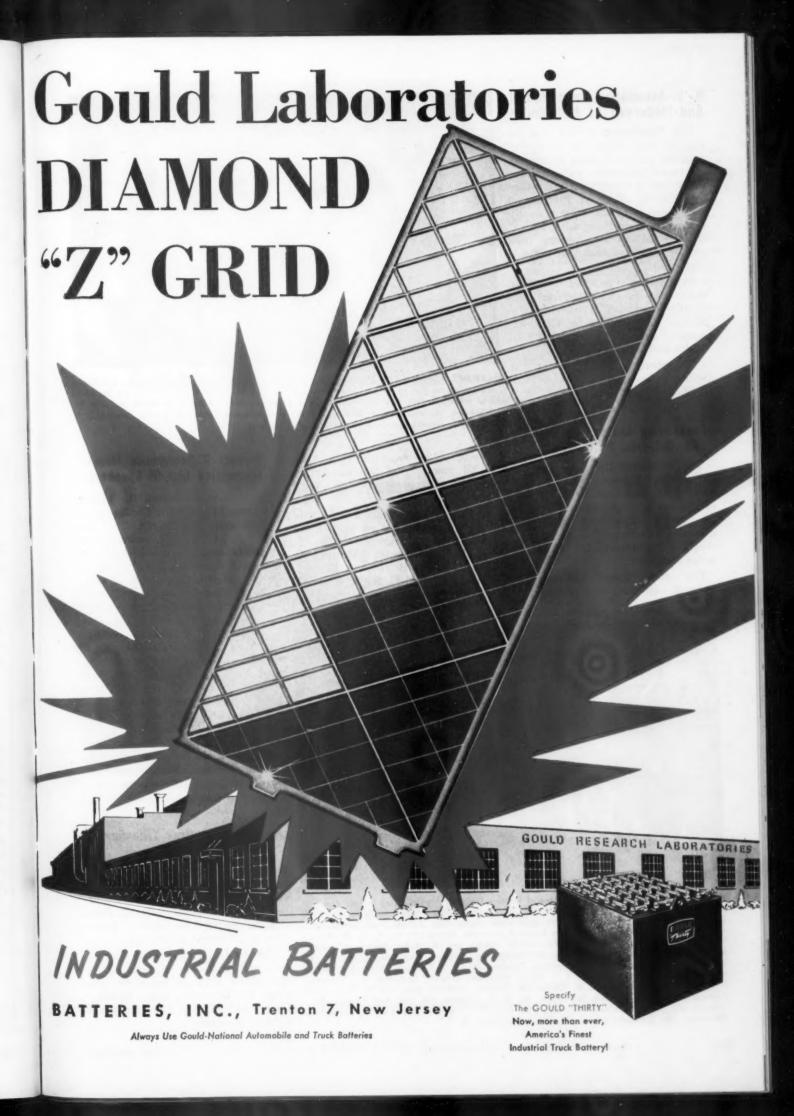
Texas Highway Patrol Program Featured At Ft. Worth Meeting

The Purchasing Agents Association of Fort Worth started their meetings for the new year with a "Traffic Safety" program put on at the Worth Hotel by the Texas Highway Patrol.

The group also held a fellowship party at the nearby Meadowbrook Country Club.



TO HEAD GEORGIA ASSOCIATION—The officers for the 1953-54 term of the Purchasing Agents Association of Georgia prepare to take over the organization's helm. Left to right: H. W. Freck, Southern Supply & Equipment Co., 2nd vice president; E. W. McCain, Citizens & Southern National Bank, treasurer; Mrs. Marie Sayne, Atlanta Gas Light Co., secretary; S. O. Franklin, Plantation Pipe Line Co., president; and A. Camp, Southern Scientific Co., 1st vice president.



N. Y. Association Hears Heinritz And McConnell At Fall Meeting

The Purchasing Agents Association of New York got its 1953-54 program underway with an opening meeting featuring an afternoon forum and a dinner meeting. Stuart F. Heinritz, editor of Purchasing, was speaker at the forum on the subject "Modern Purchasing Ethics". Edward M. Krech, second vice president of the association, acted as moderator.

At the dinner meeting, Dr. W. J. McConnell, director, Safety and Occupational Health Bureau, Metropolitan Life Insurance Co., addressed the members on "Your Health and Business Pressures".

The meeting was held at the Builder's Exchange Club on Park Avenue.

Purchasing Lecture Series Set For Oct.-Dec. By N. Y. Ass'n

The Education Committee of the Purchasing Agents Association of New York has announced the reinstitution of a series of lectures on the "Fundamentals and Techniques of Purchasing" as a result of overflow registration for a similar series last year.

The course opened October 5th and will continue for nine sessions



AKRON'S 'BOARD OF STRATEGY'—A group picture of the officers for 1953-54 of the Purchasing Agents Association of Akron. Front row, left to right: W. R. Lantz, 6th District vice president and senior director; Fred O. Goodnight, vice president; James L. Hyatt, president; and Don W. Alexander, national director. Back row: E. S. Ferry, director; Charles H. Bittner, director; S. L. Musson, secretary-treasurer; and Don A. Kepler, director.

through December 7th, It is open to all members of the association and to non-members on their staffs.

Members of the Educational Committee who will act as moderators for the discussions are: Claire W. Goodman, chairman; Walter E. Cummin, Elsie B. Gruber, Edward A. Helgans, Neil H. Reilly, Jr., and T. W. Russell, Jr.

District 2 Conference Hears Impressive List Of Speakers

Visitors to the recent 7th Annual Southwest Purchasing Conference of Associations in District 2 of the N.A.P.A. heard the following speakers: National President Andrews; National Secretary Renard; H. N. McGill, McGill Commodity Service; Paul V. Farrell, associate editor of Purchasing; Jay Owings, manager of sales, pipe division, Republic Steel Corp.; Nils Gibbons, national chairman, public relations; T. F. Corcoran, former NAPA president, member of the education committee: Russell F. Hunt, vice-president, First National Bank and Trust Co. of Tulsa: H. Thomas Austern, Washington, D. C., attorney; and a special panel called the "Standardization Forum". A complete report on this conference will appear in Purchasing in a future issue.



Members of the Purchasing Committee of Sterling Drug Inc., representing various divisions and subsidiaries of the parent organization, are shown at the Midland, Michigan plant of Dow Chemical Co., where the Committee held a two-day meeting in April. From left to right are: C. M. Womer, Sterling-Winthrop Research Institute, Rennselaer, N. Y.; A. O. Horne, Winthrop-Stearns Inc., Myerstown, Pa.; W. J. Sharpe and H. Vogel, Winthrop-Stearns, Rennselaer; G. H. Nash, The Chas. H. Phillips Co. Division, Glenbrook, Conn.; H. E. Karthauser, The Bayer Company Division, Trenton, N. J.; D. J. Carey, Sterling Products International, New York, N. Y.; F. I. Botha, American Ferment Company, Inc., Trenton, N. J.; J. De Luca, The Chas. H. Phillips Co. Division, Gulfport, Miss.; M. M. Platz, The Centaur-Caldwell Co. Division, Monticello, Ill.; W. G. Keswick, The John Puhl Products Co., Chicago, Ill.; B. Orio Sterling Drug Inc., New York, N. Y.; and W. Schauerman, Committee Chairman, The Centaur-Caldwell Co. Division, Rahway, N. J.

Toledo's McCaffrey Transferred

George L. McCaffrey has been transferred to Toledo, making it necessary for him to resign as chairman of the magazine committee and as secretary of the Purchasing Agents Association of Syracuse and Central New York.

Charles L. Patchin, Firth Carpet Co., will take over the chairmanship of the magazine committee and John E. Edmonds, Lipe Rollway Corp., will fill out the unexpired term as secretary.





AIRCO HELMETS: A complete line of helmets and face shields in a wide variety of styles and types. In any kind of service, these Airco products provide the greatest possible operator safety and comfort.

AIRCO HOLDERS: Famous Jackson jaw-type and Martin Wells screw-type holders. Nineteen Jackson models, from 200 to 500 amperes. Six Martin Wells, including the Heavy Duty Model 6S - the only holder on the market that will handle 700 amperes!



AIRCO GLOVES: The same quality that makes other Airco accessories the best value you can buy extends to welders' gloves and leather sleeves.

AIRCO CABLE AND CONNECTIONS: Unrivalled dependability, long life and flexibility. Sizes from 4 to 4/0, for wide range of amperages at varying distances from welding machine. Make sure of good connections with Airco ground clamps, cable splicers, Quik-Trik cable con-nectors and cable lugs.





AIRCO GOGGLES: for gas welding or cutting. Precision made, they afford excellent ventilation with maximum eye protection. All types exceed National Bureau of Standards requirements.

> AIRCO CYLINDER TRUCKS: Make your welding and cutting outfit easily port-able with an Airco two-wheel hand truck. Strong, rigid, welded steel frame; broad steel platform. Five models offer wheel sizes and styles for every type of surface.

AIRCO SPARKLIGHTERS: Save time and trouble with the standard Airco sparklighter and its replaceable round file. or the heavy-duty Airco Tri-Flint model, which carries three flints in a rotating holder.



AIRCO TWIN-HOSE: Two lines of hose moulded into a single, light, flexible unit. Close, tight braid permits thicker rubber cover for greater wear resistance.

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... And soapstones, tip cleaners, clamps, circle cutting attachments,

carrying cases, carbon pencils, carbon torches, graphite electrodes, chipping hammers, brushes . . . you name it - Airco has it at low

prices. Call your Airco dealer or write us directly for your copy of

Catalog 13, "Airco Welding Accessories," and complete price list.

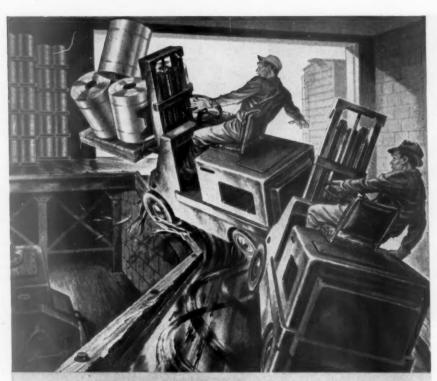
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Thus Doubling Production Efficiency And Lowering Big Insurance Costs



In a large Eastern rolling mill, a ramp from the production floor to a storage area above was so slippery from oil and grease drippings that a fork-lift truck could not climb the incline by itself. An unloaded fork-lift truck had to push the loaded one. Already a safety hazard, the slippery ramp also caused production inefficiency.

INCREASED:
Production efficiency
by more than 50%

LOWERED:
Accident insurance
premiums to save
thousands of dollars.

When A.W. ALGRIP Abrasive Rolled Steel Floor Plate was installed on the ramp, skidding stopped, accidents were eliminated, and one truck did the job better than two did before. Greater production efficiency and lowered insurance rates paid for the ALGRIP installation. Safe for vehicles as well as men, ALGRIP gives even steep inclines a hard-gripping, anti-skid surface.

In ALGRIP, tough abrasive particles (the same as used in grinding wheels) put hundreds of tiny safety brakes in every footstep—making it virtually impossible to slip. ALGRIP never wears smooth—heavy use only exposes new abrasive particles. The tough rolled steel in ALGRIP makes this floor plate stronger than other abrasive floorings. For safety that pays for itself, get the complete ALGRIP story by writing today for our new Booklet AL-31—without obligation.

Booklet AL-31 — without obligation.

At your request, an Alan Wood Steel Company safety engineer will call on you to show you how ALGRIP can be profitably used in your plant to lower insurance rates, raise production, and eliminate accidents.

Over 125 Years of Iron and Steel Making Experience

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Other Products: A. W. SUPER-DIAMOND Floor Plate • Plates • Sheet • Strip
(Alloy and Special Grades)



Coal Ass'n Offers Speakers, Movies For Program Chairmen

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Program chairmen who are looking for assistance in planning their 1953-54 schedules may be interested in the programs offered by the Bituminous Coal Institute, public relations department of the National Coal Association.

A twenty-minute talk by a well-informed coal executive on a topic of general interest relating to the bituminous coal industry is offered for groups in or near large cities in Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Oregon, Utah, Washington and states east of the Mississippi with the exception of Florida and Mississippi.

In all other states, or in smaller towns, a print of the 16 mm color-sound movie, "Powering America's Progress" may be borrowed. This film was produced by March of Time and shows, in documentary format, how coal is mined, prepared for market, transported and util-

For further information contact:
The Speaker's Bureau, Bituminous
Coal Institute, 320 Southern Bldg.,
Washington 5, D. C. Letters should
give at least three weeks' advance
notice and include an alternate
program date.

Washington Agents Golf Outing Held At Ranier Country Club

Industrial, commercial and governmental purchasing agents from Western Washington, at least those who play golf, were missing from their offices recently for the annual golf tourney of the Purchasing Agents Association of Washington. Play started at 1 p.m. at the Ranier Golf & Country Club, according to Arthur Benjamin, chairman of the committee in charge. Seattle, Everett, Tacoma and Olympia purchasing men competed for trophies and prizes.

A dinner at the country club completed the day's outing.

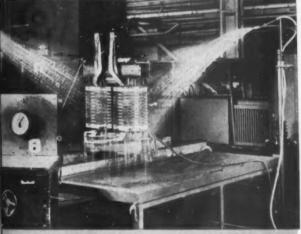
Clambake Held By Gulf Coast

Members of the Gulf Coast Purchasing Agents Association as well as a delegation from the Houston Purchasing Agents Association held a barbecue at La Quinta, recently. More than 50 persons attended the affair which began with a social hour.

50

class h insulation by National Vulcanized Fibre Co.

used by Pennsylvania
Transformer Co. to build
new, safe, and reliable Sealed
Dry Type Transformers



Transformer core and coil assembly under full voltage excitation withstands heavy water shower. The insulation resistance remained at infinity megahms during the entire two-hour



Class H insulation resists fire and combustion. The heat of the 5000° F. Oxygen-Acetylene torch, applied for the same interval, burned through the 2-inch steel plate, yet merely melted some of the glass fabric in the barrier.



Using Class H insulation (Phenolite silicone-fiberglas laminate), the Pennsylvania Transformer Company (a McGraw Electric Co. Division) builds Sealed Dry Type Transformers having many superior and safe operation features. The Class H Insulation eliminates the hazards of fire and explosion, permits up to 50 per cent weight reduction, makes possible efficient operation in humid atmosphere, reduces maintenance, allows operation at high temperatures, and permits frequent overloads. The coil barriers are made from 1/32 inch silicone sheets bonded with silicone rubber. The sheets are rolled directly onto the lathe during the coil winding operation, saving the high cost of a mandrel. Ideal for station auxiliary, unit substation and network service, these Sealed Dry Type Transformers are an outstanding example of National cooperative engineering and research. Perhaps you have an insulating problem where National Vulcanized Fibre Company can give you real help in solving your particular problem . . . economically. Write us-our engineering service is immediately available.

National laminated plastics nationally known—nationally accepted





NATIONAL VULCANIZED FIBRE COMPANY

Wilmington, Delaware



Offices in Principal Cities



If you want to take full advantage of the new laminated phenolic grinding wheels and discs... and of the most recently developed cleaners and polishes—these modern-astomorrow Millers Falls tools are made for you.

They're compact, rugged, beautifully balanced. In every detail, they're engineered to give the performance characteristics needed to make the most of the latest finishing methods.

The models shown here are just part of Millers Falls broad line of high-performance electric tools for production and maintenance. Each is designed and built to save time and produce better work for you at lower cost. Write for full information, or, let us arrange a convincing demonstration.

LIGHT, HIGH-POWERED

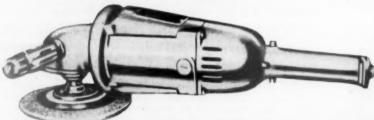
New No. 870 Sander

Weighing only 7½ lbs. — yet with a full 5.5 ampere rating and designed for continuous production use — this beautifully engineered 7" sander sets new standards in its field. No load speed is 4500 r.p.m., making the No. 870 perfect for use with the new laminated phenolic wheels and discs. In every way, an outstanding performer for fast sanding, wire brushing, grinding and polishing.

FASTER — MORE POWERFUL— New No. 270 Polisher

Greater power (5 amperes) and a higher speed (1900 r.p.m.) make this newly designed 7" unit ideal for use with the latest-type cleaners and polishes which have recently found such favor. Light and compact, it handles beautifully and gets at the less accessible surfaces. It's supplied with a deep carpetpile wool pad, the most effective polishing head ever developed. The No. 270 is also highly efficient for rubbing, sanding and grinding.





FOR HEAVY SERVICE—

No. 900 Sander

With 8.0 ampere rating, this powerful 7" sander has long been a favorite in hundreds of shops. Regularly equipped with flexible rubber and Co-ro-lite pads for sanding, it also offers exceptional, smooth-running performance with cup grinding wheels and wire cup brushes for a wide variety of finishing operations.



MILLERS FALLS COMPANY . GREENFIELD, MASS.

Rochester Agents Scholarship For Top Purchasing Student

The University of Rochester's University School has announced the 14th annual Purchasing Course with Rochester Association member W. B. Wight as instructor.

The course, which is divided into two semesters, is planned to give the student a background in fundamental purchasing policies and procedures.

The Education Committee of the Purchasing Agents Association of Rochester is offering a full scholarship for the second semester as a prize for the student from the purchasing department or related department in a member concern who achieves the highest grade in the first semester.

Dallas Association Hears Attorney And County-Judge

1 1 1

John C. Irwin, general attorney, Oil Well Supply Division of U. S. Steel Corporation, was the feature speaker at the first regular meeting for the 1953-54 season of the Purchasing Agents Association of Dallas.

At the group's most recent meeting, Judge W. "Lew" Sterrett, county judge, Dallas County, addressed the members on the subject "County Government."

Colonel Cochran, Wartime Pilot, Is Canton And E. Ohio Speaker

1 1 1

The Canton and Eastern Ohio Association of Purchasing Agents had the opportunity, recently, of hearing Col. Philip Cochran, famed wartime pilot and vice president of Lyons Transportation Co., Erie, Pa. Col. Cochran, after whom "Flip Corkin" was modeled in Milt Caniff's "Terry & The Pirates", addressed a packed house.

Dayton Agents Tour Steam Plant

1 1 1

The Purchasing Agents Association of Dayton recently held a meeting at the Peerless Pantry in Miamisburg, Following the dinner, the group went to the Hutchings Station of the Dayton Power & Light Co. for a guided tour through this extremely modern steam generating plant.

the Size you want... in U·S·S Stainless Steel

PRODUCTS

WIRE

Coils and Straight and Cut

Finishes —Copper, Lead, Tin, Galvanized, Wax,

Bright, Oil, Soap, Lime

Sizes —from .008 to .500

Lengths —from 12" to 22'.

COLD-ROLLED STRIP

Coils and Straight and Cut

Finishes —No. 1, No. 2

Thicknesses -from .010" to .1874"

Widths —from 3/16" to 2315/16"

Lengths —from 12" to 20'

TUBING

Finishes —Standard Pickle, Grit No.'s 80, 120, 180,

320 and range polishing

O. D. Sizes -from 3/8" to 9"

Lengths —Comparable to other carbon, alloy

cold-drawn tubing

All these products are available in the South.

from Tennessee Coal & Iron Division
and in the West from Columbia-Geneva Steel Division

STAINLESS STEEL wire as thin as a hair or as thick as your thumb ... Stainless Steel plates "as big as the side of a house" ... Stainless Steel pipe and tubing in a wide range of analyses and in all commercial sizes ... you get them from United States Steel.

You have the widest possible freedom in selecting the grade, shape and finish that fit your design and fabricating procedure. And we'll be glad to discuss the special orders that may go beyond the catalog range.

Keep in mind, too, the fact that our mills have roll passes for an unusually broad range of sections for special applications. New rolls can be cut for others if requirements justify the need.

Along with this wide selection goes top quality when you use U.S.S Stainless Steel—a perfected, servicetested material that is made to give the finest performance, both in fabrication and in end use.

You also receive the assistance of our representatives in helping you to cut fabricating costs and achieve the best results through selection of the proper grade, size and finish for your job.

For everything you want in Stainless Steel, come to "Stainless head-quarters"—United States Steel.

UNITED STATES STEEL CORPORATION, PITTSBURGH - AMERICAN STEEL & WIRE DIVISION, CLEVELAND - COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
NATIONAL TUBE DIVISION, PITTSBURGH - TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. - UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS

U·S·S STAINLESS STEEL

SHEETS . STRIP . PLATES . BARS . BILLETS . PIPE . TUBES . WIRE . SPECIAL SECTIONS

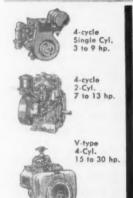


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UNITED STATES STEEL







As a potential or present user of internal combustion engines, you will readily recognize the advantages of dealing with an outstanding leader in this field.

Because constant engineering effort and manufacturing skill are applied entirely to the improvement and large volume production of WISCONSIN HEAVY-DUTY AIR-COOLED ENGINES, in a complete, all-purpose power range, you have the best assurance not only of dependable power units ideally suited to your power applications but, of equal importance . . . you have, here, the world's most dependable source of supply both for engines and original factory parts.

Supporting this endeavor are key distributors of impressive recognition in the territories they serve, and a staff of competent Wisconsin Motor Corporation field men, in close liaison between factory and customer. Your best interests are our primary interest.



WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN



Gopperweld Steel Plays Host For Youngstown Agents Meeting

The Copperweld Steel Co., Warren, Ohio, played host to the membership of the Youngstown District Purchasing Agents Association for the group's first meeting for Fall.

The members met at the plant at 2:30 in the afternoon for a tour of Copperweld's production facilities. The meeting was closed out with a dinner at Copperweld's club on the plant property.

Tippecanoe Country Club was the site of the sixth annual golf party of the Youngstown Purchasing Agents Association. Tee-up time was scheduled for 11 a.m. with the awarding of prizes and a dinner to follow.

Women's Division of Chicago Ass'n Holds Dinner Meeting

Miss Elaine Kitto, communications director for the Belie City Malleable Iron Co., Racine, Wis., was guest speaker at a recent meeting of the Women's Division of the Purchasing Agents Association of Chicago. She spoke on "Getting to Know You".

Also featured at the meeting were Miss Betty Peterson, winner of the \$500 Junior Achievement Scholarship Award of the Purchasing Agents Association of Chicago, and Miss Barbara Dahlquist, former member of JA. The two guests spoke on the work and activities of the Junior Achievement movement.

Reading Agents Hold Outing

The Reading Purchasing Agents Association held its annual outing recently at the Swallows Club. The affair featured a clambake, games and prizes. Richard Behrenhauser was chairman of the outing.

Fathers-Sons-Daughters Night Starts Cleveland Agents' Season

The opening meeting of the 1953-54 season of the Purchasing Agents Association of Cleveland was a Fathers-Sons-Daughters Night at the Hotel Carter's Rainbow Room.

Otto Graham, star passer of the Cleveland Browns, was the featured attraction. Robert Menga, teenage violinist, entertained the group with some fine selections.

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Longer Life!

AFTER long research, Disston has developed new equipment and new methods for making hack saw blades!—blades that are far superior in all respects to ordinary blades!—blades that promise users extraordinary benefits!

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3 N. Y. Ass'n Members Serve On NSE Discussion Panel

Three members of the Purchasing Agents Association of New York served in a panel-discussion at the first session of a three-week inresidence course sponsored by the National Sales Executives Club at the Graduate School of Sales Management and Marketing, Rutgers University, New Brunswick, N. J.

The subject of the discussion was "Today's Salesman and His Technique".

The members who participated were: Maurice E. Ash, Merck & Co., Inc.; Harold K. LaRowe, American Cyanamid Co.; and Edward M. Krech, J. M. Huber Corporation.

Twin City Agents Hear Fred Kaufmann On Brass and Copper

The Gold Room of the Radisson Hotel was the site of the Fall "kickoff" meeting for the Twin City Association of Purchasing Agents.

A Pre-Meeting Huddle, early in the evening, discussed "Methods of Processing Invoices As Related to the Purchasing Agent" with Mel Hendricks acting as moderator. Following this there was a Commodity Session.

At the dinner meeting, Fred C. Kaufmann, district manager, Chase Brass & Copper Co., Minneapolis, was the feature speaker. A technicolor film of Chase Brass & Copper entitled "The Science of Making Brass" was followed by Mr. Kaufmann's comments on the copper situation.

Buffalo's Annual Picnic Proves Big Success As Hundreds Attend

Bright sunny skies gave a big assist in providing a highly successful picnic for the Purchasing Agents Association of Buffalo at the Automobile Club of Buffalo. Paul Braun, general chairman, reported that 615 adults and 139 children attended the day-long affair.

Highlights of the day's activities were the besting of the salesmen's Tug-of-War team by the Powerful Purchasing Agents to the tune of two sets out of three and the 8 to 5 score of the PA's in beating the salesmen's softball team.

A delicious ham dinner, 147 door prizes, and dancing to the music of the Automobile Club Orchestra completed an enjoyable outing.



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Like other plant men the country over, you'll find that your local Lustra Man can reduce glare and step up the "see-ability" required for top efficiency in precision work areas...with Lustra Jade-Lite Fluorescent Tubes.

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Transportation Expert Guest At Connecticut Meeting

A regular meeting of the Purchasing Agents Association of Connecticut was held on Tuesday, September 22, at the Wethersfield Country Club, Wethersfield, Conn.

Guest speaker was Leo A. Golden, general manager, Eastern Motor Freight Conference, Inc., Hartford. Mr. Golden's topic was "Today's Transportation in Industry."

Principal speaker at the October 27 meeting of the association will be U.S. Senator William A. Purtell. The annual association meeting will be held on November 24, and will feature George Renard, executive secretary-treasurer of N.A.P.A. as speaker.

Outstanding Program Planned For Southeast Conference

The tenth annual conference of the Purchasing Agents of the Southeast will be held at Hotel Heidelberg, Jackson, Miss. on October 12 and 13.

Some of the outstanding speakers who will address the three business sessions of the conference are:

Hon. Francis Cherry, Governor of Arkansas; George A. Huth, president, Mississippi Products, Inc., Jackson; E. F. Andrews, president of the National Association of Purchasing Agents; Dr. Vernon L. Wharton, dean, Texas State College for Women; E. H. "Buck" Weaver, chairman of the N.A.P.A. Committee on Standardization and manager of purchases, Union Oil Company of California.

C. W. McVicar Speaker At New Orleans Association Meeting

1 1 1

C. Warner McVicar, director of purchasing and traffic, Rockwell Manufacturing Company, was the principal speaker at the regular monthly dinner meeting of the Purchasing Agents Association of New Orleans, held at the St. Charles Hotel on September 14.

Mr. McVicar spoke on "The Value of a Purchasing Manual to Purchasing and Management."

Robert Elsasser gave his usual upto-the-minute economic predictions.

Cincinnati Agents Play Golf

Harold R. Kessler, entertainment chairman, announced that the Cincinnati Association of Purchasing Agents held a golf party at Maketewah Country Club. An afternoon on the greens was followed by a dinner at the club.

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For electrical and general purpose jobs. This is the strong, tacky tape that really grips and stays on. The fabric has unusually high tensile strength to handle tough jobs. Straight-tearing, non-ravelling. No pinholes to cause leaks. Rely on Security to stay on. Available also in specification grade—U.S. Holdtite®—exceeds A.S.T.M. specifications.

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Milwaukee Association Cooperate in Marquette Purchasing Course

For the 19th successive year, the Milwaukee Purchasing Agents Association is sponsoring an evening course in Industrial Purchasing in conjunction with the College of Business Administration, Marquette University. The course meets weekly, on Thursday evenings, starting on September 24th and running through two semesters, the final session being scheduled for June 3, 1954. It includes class discussions, guest lectures on various phases of buying, problem clinics, commodity presentations, and plant visits.

The Association's participation in this project is a very active one. W. J. Budzieszewski, Assistant Purchasing Agent, Harnischfeger Corp., is in direct charge, assisted by the Educational Committee of the Association. In addition, many individual members are scheduled to address the class. Among these are:

C. A. Failmezger, Pur. Agt., Wadhams Div., Socony Vacuum Oil Co., and President, M.A.P.A., Introductory Statement, Sept. 24, 1953.

Leonard E. Benedict, Pur. Agt.,

Leonard E. Benedict, Pur. Agt., Amity Leather Products Co., Principles of Procurement, Oct. 8, 1953.

Lowell F. Whisler, Pur. Agt., Waukesha Motor Co., When to Buy—When to Manufacture, Oct. 22, 1953.

J. W. Nicholson, Pur. Agt., City of Milwaukee, Catalogs—Systems—Files— Business Letters, Nov. 5, 1953.

Roy E. Anderson, Pur. Agt., Harnischfeger Corp., Disposition of Waste Material, Salvage, and Scrap, Dec. 17, 1953.

G. L. Hartman, Vice Pres., Milwaukee Flush Valve Co., The Purchase of Castings, Feb. 18, 1954.

Jules Everson, Pur. Agt., Hamilton Mfg. Co., Responsibility of the P.A. in Intra-Company Relations, March 4, 1954.

K. E. Groth, Pur. Agt., Stolper Steel Products Co., Price Policies and Economics of Purchasing, April 1, 1954.

William G. Mett, Pur. Agt., Burlington Mills, Forward Buying, May 6, 1954.

Other guest lecturers are:

Douglas C. Basil, Marquette University, Paper Flow in Purchasing, Nov. 5, 1953.

Don Ploetz, Traffic Mgr., Harnischfeger Corp., Material Handling and Traffic Responsibilities of the P. A., Dec. 10, 1953.

Lynn Surles, Marquette University, The Value of Public Speaking in Purchasing, Jan. 7, 1954.

Prof. Zeno LeTellier, Vice Pres. and Chief Chemist, Pate Oil Co., Lecture and Demonstration on Oil, April 22.

A. W. Pipenhagen, Asst. Gen. Counsel, Harnischfeger Corp., Legal Aspects of Purchasing, April 29, 1954.

During the course students will have an opportunity to visit and observe plant operations at Brillion Iron Works, Interstate Drop Forge Co., Continental

(Please turn to page 214)



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You can get rod or drawn bar of Chase Free-Cutting Brass, Copper or a wide variety of other copper alloys at one stop - the Chase

When you want free-cutting materials, it pays to buy Chase - for Chase rod and drawn bar yield the shorter chips that make for easier machining, longer tool life. They produce smooth, clean-surfaced products - less expensive to buff or polish before lacquering, enameling or plating.

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Although the cost is a little more than for ordinary annealed stock, a trial order will convince you of the true economy of HY-TEN "B" No. 3X heat-treated bars! Just call your nearest WL representative.



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and Cleveland • Chicago • Detroit Hillside, N. J. • Bullalo • Cincinnati (Continued from page 212) Can Co., and Pabst Brewing Co.

It is also the annual practice of the Milwaukee Association to invite students completing the course to attend one of the regular Association meetings as guests, to award certificates, and present prize awards for the outstanding course papers.

Research Engineer Guest at Los Angeles Meeting

Dr. Willis Ware, Research Engineer of Rand Corporation of Santa Monica, was the principal speaker at the Los Angeles Purchasing Agents Association meeting, Thursday, September 10th, at the Elks Club. "Computers Unlimited," the subject of Dr. Ware's address, centered on the spreading effect the high speed electronic devices will have on tomorrow's general business.

Host To 3000

Los Angeles was host earlier this year to 3000 delegates at the 38th International Convention of the National Association of Purchasing Agents, at which time William Reynolds was the General Convention Chairman. As the newly elected president of the local association, Reynolds, Director of Purchases and Stores, Los Angeles Transit lines, opened the local association meeting and introduced the new board of directors: David L. Wilt, University of California at Los Angeles, First Vice President; John R. Hairgrove, Braun Corp., Second Vice President; E. Benton Long, United States Lime Products Corp., and S. H. Bellue, Hughes Aircraft Co., Directors; Burt M. Pulver, Barker Bros. Corp., Secretary; Frank D. Lortscher, Signal Oil & Gas Co., National Director.

The coming activity year, as announced by Reynolds, will have dinner meetings, noon meetings for specific buyer groups, educational seminars at the local universities, each month; and, at intervals they will continue to teach undergraduate classes at local colleges, as requested by college officials.

N.Y. Senator Guest Speaker At Buffalo Assn. Meeting

State Senator Earl W. Brydges, Republican, 52nd N.Y. Senatorial District, was the principal speaker at the first fall meeting of the Purchasing Agents Association of Buffalo, held on September 9 at the Hotel Sheraton.

Among new members of the association are Ronald B. Davis, Davis Electrical Supply Company; Neil J. Sheehan, International Railway Car Company; R. J. Cheeley, Kewanee-Ross Corporation; Ellsworth Howard Lang, Manzell, Division Frontier Industries; Nelson M. Ripley, McDougall Butler Company, Inc.; and Gordon Spaulding, American District Steam Co., Inc., North Tonawanda, N.Y.



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AND TYPE OF YOUR MACHIN-ERY, LUBRIPLATE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.



Washington Association Has First Fall Meeting

The first fall meeting of the Purchasing Agents Association of Washington was held on Thursday, September 10, at the Olympic Hotel in Seattle.

Features of the evening included a panel discussion, "Standardization As a Trick of the Trade", with Harry Beetham, Northwest Metal Products Co. as moderator. Panel members were Allan Fox, Puget Sound Power & Light Co.; Willard W. Harvey, Ravenna Metal Products Company; H. C. Jenseth, General Electric Company, and John W. Harding, University of Washington.

A colored sound movie, entitled "Drifting the Middle Fork of the Salmon River in Idaho" was shown. The picture was filmed by Merle Tobias of Portland, Ore.

Inventory-Controlled Purchasing Topic At Chicago Meeting

A regular meeting of the Purchasing Agents Association of Chicago was held on Wednesday, September 9 at the Hotel Sherman.

Guest speaker was T. J. Ault, recently promoted to vice-president and assistant general manager for the Detroit Gear Division of Borg-Warner Corporation. Previously, Mr. Ault had been vice-president and purchasing agent. His topic was "Scheduled, Inventory-Controlled Purchasing."

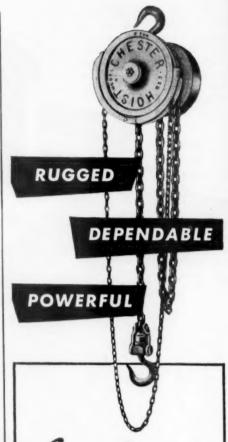
New England Conference To Be Held in Boston, October 15

The Eighth Annual Purchasing Conference of the New England District of the National Association of Purchasing Agents will be held in Boston, Mass. on October 15.

The one-day meeting will be held in the Hotel Statler. Cooperating in the conference will be the Purchasing Agents Association of Connecticut; New England Purchasing Agents Association; Rhode Island Purchasing Agents Association; The Purchasing Agents Association of Western Massachusetts.

Among the vital purchasing topics listed for discussion are Value Buying, Simplification, Standardization, Research, New Developments in New England, Public Relations, Metals.

Speakers will include E. F. Andrews, Pitman-Moore Company, president of N.A.P.A.; George Renard, executive secretary-treasurer, N.A.P.A.; Robert M. Edgar, vice president and assistant to the president, Boston & Maine Railroad; Nels Gibbins, chairman of the N.A.P.A. Public Relations Committee; Vincent deP. Goubeau, vice-president and director of materials, Radio Corporation of America; Richard S. Morse, president, National Research Corporation; Nicholas E. Peterson, vice-president, First National Bank of Boston.



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They're safe for your men and equipment, too, because they're actually built to a safety factor of 5 times their rated load.

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One weld is eliminated with a resultant saving in layout time, welding, and cost. Pressure drop is reduced, appearance is improved and the piping is easier to insulate. Sizes to 12", reductions to half size.

Children get the hang of a bubble pipe almost by instinct... it's so simple and easy to use. Pipe welders report that they find Midwest Welding Fittings simple and easy to use because they are so uniform... so accurate to dimension... and because of their greater variety. Representative of this greater variety is the Midwest Reducing Elbow (shown at right) which takes the place of a standard elbow and a reducer... requires only two welds instead of three. For more information on why Midwest Welding Fittings are simple and easy to use, ask for Catalog 48.

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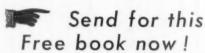
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Gentral Michigan Assn. Holds National President's Night

A "National President's Night" meeting of the Purchasing Agents Association of Central Michigan was held in the Union Building, Michigan State College on Tuesday, September 15.

Guest of honor was E. F. Andrews, president of the National Association of Purchasing Agents. Also honored at the meeting were executives of members' companies, past local association presidents, and special guests Mayor Ralph Crego of Lansing, and his entire City Council.

L. Glen Wiseley, vice president for District Four, N.A.P., and President Andrews were speakers.

In a special program printed for the affair appeared the following:

"Dear Boss:

"Our 102 members are honored by your presence. These annual meetings are designed to acquaint you with purchasing progress.

"We believe the lone wolf may go fast and far; there is no satisfactory substitute for individual initiative, intelligence, education and experience. We have found the profits to be greater and faster by combining the knowledge and experience of those who have similar problems and aspirations through our association meetings.

"We are especially happy to have the Mayor and City Council with us. We believe you will be better able to consider the advisability of a Centralized Purchasing Department for the City of Lansing after seeing Purchasing Agents in action."

Washington Association Has Double Plant Visitation

Members of the Purchasing Agents Association of Washington participated in a "duo" plant visit on Wednesday, September 23.

The group opened the affair with luncheon at the Wharf Restaurant, Seattle, as guests of the two host firms—Northwest Steel Rolling Mills and the Northwest Nut & Bolt Company.

During the first visit, they saw molten steel poured out of an electric furnace, rolling mills, a new reinforcing steel fabricating shop, and a new machine shop.

At the bolt and nut plant they saw the conversion of new steel and brass bars into bolts, nuts, rods, washers, rivets and other fasteners.

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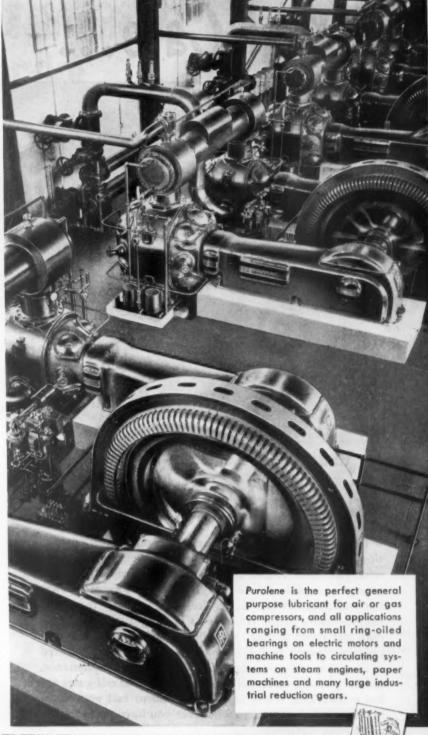
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Purolene is one of a group of Pure Oil multi-purpose industrial lubricants, each designed to do many different jobs equally well. You can use them to simplify your lubrication practice and reduce your lubricants inventory.

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Mayflower's organization of selected warehouse agents provides on-the-spot Mayflower agent is listed in the classified section of your telephone directory.





Photographic Effects Can Be Printed on Cellophane

A new process for printing photographic effects on cellophane has been developed by the Lassiter Corporation, New York.

Called Lassitone, the method permits reproduction of half-tone photographs or art on cellophane without the preparation of costly printing cylinders necessary for rotogravure reproduction. Until the development of the Lassitone process, the small user found the cost of rotogravure printing too costly for small volume production. The new process, with its lower cost and adaptability offers all size concerns the opportunity of using printed cellophane wrappings.

One of the most important advantages of the process is that it permits production of packages of various sizes from the same set of half-tone printing plates. Minor copy changes in designs containing photographs can be made with ease without making complete new plates. This permits a small cellophane user to have a "family" design for all his products and make appropriate changes in copy for each item marketed under the same trade name and common logotype.

Navy Begins Study of Metal Protecting Films

Based on results obtained from an excellent rust-preventive produced during World War II, the U.S. Navy is undertaking an exhaustive study of such metal protectors in conjunction with Brooklyn Polytechnic Institute and Rutgers University.

During the war, when metal parts for ships were often exposed to the elements for months before final assembly, the Bakelite Corporation produced a substance, now termed a "wash primer", to protect these parts. Quickly applied with either a brush or sprayer, the coating was found ideal for the purpose.

It was also found ideal as a paint undercoat for ships' hulls. And, when used with conventional paints, the finish lasted 100 per cent longer, was both durable and adhesive, and

wouldn't chip or crack.

No one knew exactly why the substance was so effective. Consequently, the Navy and the two schools will delve further into the use and developments of such rust preventive compounds and try to ascertain the strength and long-life of those presently in use.

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Order phoned in



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This is typical handling of most orders by your nearby Reynolds Distributor. He can give you exceptionally prompt delivery from his complete line of aluminum mill products in all standard alloys. tempers and sizes. Call him today.

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Tay-Holbrook, Inc., San Francisce
Union Hardware & Metal Co., Los Angeles
United States Steel Supply Div., Los Angeles

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DISTRICT OF COLUMBIA
Lyon, Conklin & Co., Inc., Washington

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Mapes & Sprowl Steel Co., Union
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OHIO
The Atlas Metal Co., (Ingot only) Cleveland
The G. A. Avril Company, (Ingot only) Cincinnati
The Hamilton Steel Co., Cleveland
Mutual Manufacturing & Supply Co., Cincinnati
Vorys Brothers, Inc., Columbus
OREGON
Woodhury & Company, Cost Bay, Sugano, Medi

Woodbury & Company, Coos Bay, Eugene, Medford and Portland

and Portiona
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Athos Steel Service Co., Philadelphia
Levinson Steel Sales Company, Pittsburgh
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Potts-Farrington Company, Philadelphia
Nathan Tretter & Co., Inc., (Ingot enly) Philadelphia SOUTH CAROLINA Southern States Iron Roofing Co., Columbia

TENNESSEE

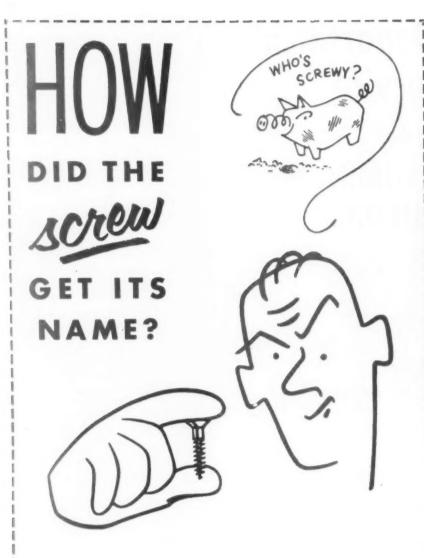
outhern States Iron Roofing Co., Memphis and Nashville

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Moncrief-Lenair Mfg. Co., Dallas, Harlingen,
Houston, Lubbock, San Antonio and Temple
Vinson Supply Co., Dallas, Odessa and Snyder

UTAH Salt Lake Hardware Co., Salt Lake City VIRGINIA Southern States Iron Roofing Co., Richmond

WASHINGTON
Clingon & Fortier, Inc., Seattle
WISCONSIN
Benjamin Wolff & Co., Milwaukee

Look Under "Aluminum" in Your **Classified Telephone Directory**



The word "screw" is supposed to come from the Latin "scrofa" which has been defined as "a digger," from the habit of swine, who are fond of rooting up the earth with their noses. However, at least one man disagrees with the explanation. He figures that the etymologists have picked the wrong end of the pig. To him, the curly tail looks more like a screw than the nose does. Heads or tails, tradition has made the word part of the language.

Today, Allmetal—maker of stainless steel screws, bolts, nuts, and many other stainless fasteners—owes its good name to a tradition of high quality and fast service. If you need anything from our line, just give us the word.

Our 96-page catalog contains engineering data and weights as well as sizes and dimensions of stock items. If you want a copy, send us a note on your letterhead. Ask for catalog 53Q.



Expanded Metal Floor Panels Make Painting Clean and Safe

In this 134-foot-long spray booth in a large eastern auto assembly plant, eight cars are painted continuously in clean atmosphere of filtered heated air that enters from an overhead plenum, passes around cars and out through expanded metal floor grating into patented wash chambers in the booth walls.



Cars of eight different colors can be painted simultaneously in this booth—built by Westfield Sheet Metal Works, Inc., Kenilworth, N. J.—since all excess sprayed paint is drawn directly through the Wheeling expanded metal grating, with no possibility of deposit on another car.

Made by slitting and stretching heavy gauge steel sheet into strong, resilient panels with diamond-shaped openings, the Wheeling expanded metal provides secure footing for operators painting car bodies inside and out. Burr-free surface of the expanded metal floor grating minimizes clogging by paint particles, also simplifies daily cleaning.

Plant Maintenance Show Moves to Chicago for 1954

The Plant Maintenance Show—now known as the Plant Maintenance & Engineering Show—has been moved to Chicago for 1954, after being held in the east for the past four years. The exposition will take place at the International Amphitheatre, January 25-28 inclusive.

The show will cover more than 100,000 square feet of exhibit space, about one-third more space than was used in 1953, and will be approximately six times the size of the first exposition. Total of companies expected to have exhibits at the show is 350.



with a coal that's exactly right

Name your choice—in "Bituminousland" along the Baltimore & Ohio, we have it! Here Nature has stored a supply of economical heat and energy sufficient to last for centuries.

B&O Bituminous coals exist in wide variety. The mines that produce them are thoroughly mechanized so that costs are kept low, size and quality uniform. Nearness to industrial centers results in low transportation costs, and the ease of storing removes the need for expensive facilities. Furthermore, new methods and equipment have increased the burning value of Bituminous.

ASK OUR MAN! Let him direct you to the best coal for your needs, and explain proper firing methods. You'll be more than pleased at the improved efficiency, economy, and cleanliness of B&O Bituminous.



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Constantly doing things-better!

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There's a big difference

in floor absorbents



You, too, can witness the difference in floor absorbents! With his portable laboratory, your Eagle-Picher man will analyze your floor absorbent *right in your office*. You may actually conduct the test yourself! Without obligation, of course.

Here's what the test shows-

- The amount of oil and water absorbed for given bulk.
- The cost of your absorbent in terms of absorption and coverage.
- The amount of coverage you're getting.
- The benefits of your absorbent in terms of safety and reflective ability.

You'll see that Eagle-Picher Floor-Dry is insoluble, chemically inert and non-combustible... that it combines light weight for exceptional coverage with light color for brighter, safer working areas. Write today for the full story.



EAGLE-PICHER INDUSTRIAL FLOOR-DRY No. 85

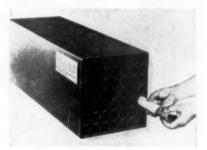


THE EAGLE-PICHER COMPANY

General offices: Cincinnati (1), Ohio

New Method For Easy Filing of Large Layouts and Tracings

It is now possible to file large layout and tracings using the time-proven 'mailing tube method' and yet have the material readily available. This can be done through the use of an index relating to coordinated tubes in a Multiroll file, which is made by Roll & File Systems, Inc., P.O. Box 25, Ferndale 20, Mich.



Each Multiroll file unit contains 49 tubes of 1¾" ID encased in a 200 lb, test reinforced corrugated board container and secured to produce a unitized assembly of surprising strength.

A smaller tube is furnished with each file around which the material to be filed is first rolled. It is then inserted into the file and the rolling tube withdrawn as the filed material expands. The contents of each tube compartment can be easily removed with the forefinger and thumb. Location of the material can be recorded on the index form furnished with the file or entered in a card file system when alphabetical, topical or cross-referenced indexing is indicated

How Good Lubrication Cuts Costs Outlined in Leaflet

How the small businessman can reduce maintenance costs through systematic lubrication of his plant machinery is explained in a new leaflet announced by the Small Business Administration.

The leaflet, Economies in Lubrication, is Number 28 in the series of Technical Aids, and may be obtained free from all SBA field offices.

Too often, the leaflet points out, management considers lubricants as necessary items of expense about which little can be done other than to buy cheaply and apply haphazardly. Actually, through proper attention to lubrication, maintenance costs can often be greatly reduced.

Analysis of the savings achieved in individual plants through proper lubrication is presented in the leaflet.

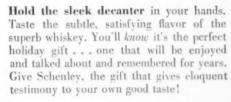


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...the best-tasting whiskey in ages

in a gleaming, crystalbright decanter at no additional cost

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The same fine whiskey is available, as always, in the distinctive Schenley round bottle.





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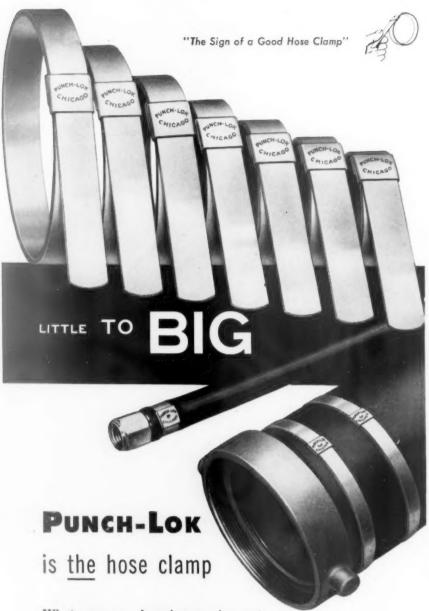
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Whatever your clamping requirements,

big or little—or in-between—you can get a Punch-Lok clamp with quality features for the job. Its versatility is unsurpassed. Whether used as a hose clamp on large suction hose or on small diameter welding hose or for hundreds of construction jobs such as wrapped pipe insulation and holding insulation covers—only Punch-Lok can do so many jobs so well and at such low cost.

See Your Near-by Punch-Lok Distributor



COMPANY

321 North Justine Street Chicago 7, Illinois

G.E. to Build Control Plant at Bloomington, III.

A five-million dollar General Electric plant will be built at Bloomington, Ill. to manufacture general purpose controls for industrial use. Construction will start this year. The plant will produce a complete line of electric controls, including starters for motors ranging up to 200 hp, pushbuttons, compensators, and many other devices. Up to now, these products have been made at the G.E. Schenectady works.

A.S.A. Issues Guide for Circuit Breaker Purchasers

Purchasers and users of circuit breakers no longer need to delve into the highly technical intricacies of the inner workings of these devices, according to an announcement made by the American Standards Association.

A new American Standard, C37.12, Guide Specifications for Alternating-Current Power Circuit Breakers, just published in the power switchgear field, will afford the equipment buyer an outline for purchasing circuit breakers.

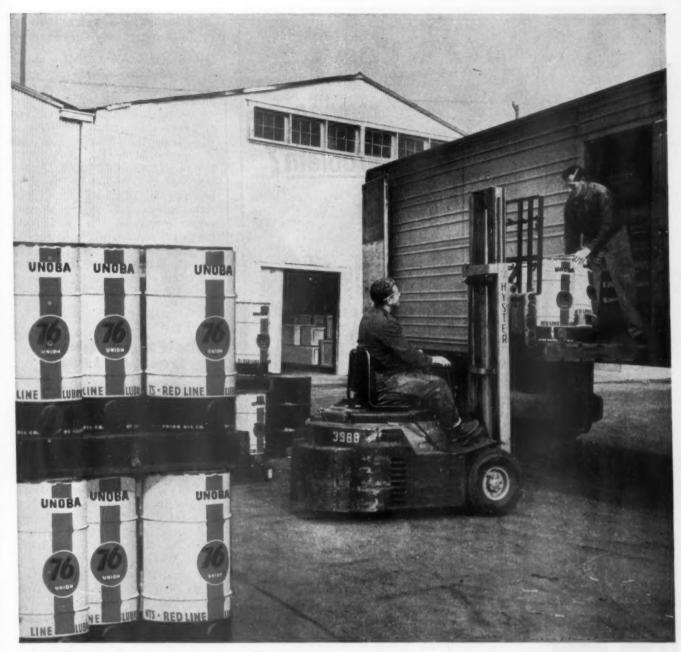
It also guides the manufacturer toward furnishing information which will describe clearly the equipment proposed to be furnished not only to aid the purchaser, but also to be used as a reference for manufacturers and vendors in submitting bids.

The specifications outlined in the standard apply to all types of alternating-current power circuit breakers, both indoor and outdoor, having an interrupting rating of 50 mva or higher and a voltage rating above 1500 volts.

New Edition of Pressed Metal Blue Books Issued

The 1953 Edition of the Pressed Metal Institute's Blue Book of Stamping Manufacturers has been released. This directory lists the facilities and services of all member companies, and also contains a Statement of Policy to Customers which has been subscribed to by all members of the Institute.

Copies of the Blue Book are available to all members and customers of the industry by writing to the Pressed Metal Institute, 2860 East 130th Street, Cleveland 20, Ohio, on company letterhead.



They use only UNOBA—one grease that does the work of seven!

Like many other leading manufacturers, C & H Machine & Engineering Co., in Berkeley, California, uses only *one* grease... UNOBA, the original multi-purpose grease. They know from experience that UNOBA grease assures minimum operating costs and dependable machine protection.

Because it is a barium-base grease, UNOBA can be used in practically all your grease-cup and gun fittings. In some factories, this one grease has replaced as many as seven specialized lubricants.

UNOBA is ideal for many unusual operating conditions because it re-

sists both heat and water. Multi purpose UNOBA sticks to metal surfaces at temperatures ranging from below freezing to over 300 degrees E, regardless of moisture!

Multi-purpose UNOBA was developed by the makers of T5X—the amazing purple heavy-duty motor oil.

OFFICES: LOS ANGELES: Union Oil Building

NEW YORK: 45 Rockefeller Plaza

CHICAGO: 1612 Bankers Building

NEW ORLEANS: 644 National Bank of Commerce Building

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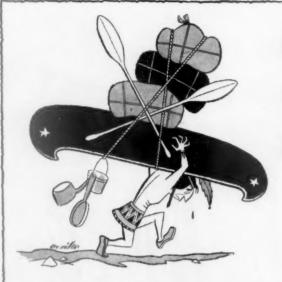
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The best moving service is AMERICAN RED BALL—a complete service! Safe, fast, efficient—yet the COST IS LOWER THAN MOST! Consult the yellow pages of your 'phone directory for your nearest AMERICAN RED BALL agent! FREE PERSONALIZED ESTIMATE!

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PIONEER NATION-WIDE MOVERS

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High-speed, quality production with custom-made precision. Wire formed to any shape for every need.

IMMEDIATE CAPACITY FOR DEFENSE SUB-CONTRACTS
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Perfect straight lengths to 12 ft.
.0015 to .125 diameter
WIRE FORMS

.0015 to .125 diameter

SMALL METAL STAMPINGS .0025 to .035 thickness

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Specializing in Production of Parts for'
Electronic, Cathode Ray Tubes & Transistors

Write for illustrated folder.
Send Blueprints or Samples
for Estimate.



ART WIRE and STAMPING

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Titanium Is Now Available In Commercially Pure Form

The new wonder metal titanium is now readily available in commercially pure form, precisionrolled to very close tolerances and to thin gage and foil and for use throughout industry. This is because the Industrial Division of the American Silver Co., Inc., 36-07 Prince St., Flushing 54, N. Y., has equipped itself to produce exacting precision specifications of this type —the "tough ones" that most mills refuse to produce. Titanium is finding more industrial uses as in cowlings, fire walls, fittings in the aircraft industry, etc. Titanium is extremely strong, the equal of many steels but weighs only 56% as much.

Use Of Magnetic Separators Saves \$8,000 Annually

1 1 1

The National Container Corporation of Tomahawk, Wisc., reports that since installing a magnetic pressure hump in its processing lines, no damage to its Sutherland refiner plates has been suffered because of tramp iron inclusions. This company uses a 14" special magnetic pressure hump, made by the Eriez Manufacturing Company, Erie, Pa., for a 10" diameter pipe. The hump is constructed of ¼" stainless steel plate and incorporates two large Alnico V magnets.

Material being processed, consisting of 5% semi-chemical stock, passes from the reaction tank to a stock storage unit. It then goes through the Eriez hump before entering the refiner. About 680 gallons are handled per minute. In these lines the magnetic hump provides protection against machinery damage by removing weld slag, small steel and metal scraps contained in the plant's supply of wood chips.

E. M. Kulas of National Container Corporation, said that since installing the Eriez Magnetic Hump tramp iron damage to refiner plates has been eliminated. Up until the installation the replacement of these damaged plates cost the company \$8000 annually. In the past, approximately 30 man-hours were expended every time the plates had to be replaced. In addition, Mr. Kulas reported, production at this point of operation has increased because of the downtime eliminated since the magnetic hump was installed over one year ago.

Micro Rold STAINLESS STEEL SHEET AND STRIP VERI-THIN Micro Rold The Washington Steel Corporation is now producing Veri-Thin MicroRold Veri-Thin MicroRold stainless steel sheet and strip. Veri-Thin MicroRold is available in 18-8. Thin MicroRold is available in 18-8 grades in 36" wide sheets .006 to .009 grades in 36" wide sheets .004 to .009, 28 and 2D finish; sheets .004 to .009, 28 and 2D finish; and 24" maximum width sheet and strip .002 to .009 thick, bright annealed. Veri-Thin is also available in Type Veri-Thin is also available in Type WASHINGTON STEEL CORPORATION WASHINGTON, PENNSYLVANIA

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HERE'S THE EXTINGUISHER YOU PICKED AS "EASIEST TO USE" OVER THREE OTHER LEADING BRANDS...



Safety and Plant Engineers—here's how you voted: In a national survey recently completed, 100% of your replies stressed ease of operation as a major factor in Extinguisher selection. And on the basis of being "easiest to use", 86% of your replies specified Randolph over the nearest brand—66% specified Randolph over three other leading brands, combined!

With no nozzles to adjust, no valves to turn, Randolph Extinguishers are 100% panic-proof. Just snap from the bracket, aim and press the trigger. You KNOW how to use this extinguisher just by looking at it!

COMPLETE LINE OF EXTINGUISHERS AND AUTOMATIC EXTINGUISHING SYSTEMS

Make sure your plant is mobilized for fire... with easy to use, simplified RANDOLPH Equipment. Sizes from 2½ to 50 lbs. Manual and automatic systems. Write Randolph Laboratories, Inc., 1 E. Kinzie St., Chicago 11, Illinois.



New Contact Material Is Laminated in Ingot Form

A new precious metal contact material laminated in ingot form through heat and pressure and then cold rolled to required dimensions, is announced by D. E. Makepeace Co., Division of Union Plate and Wire Co., Attleboro, Mass.

"Raised-Lay," as the new material is known, consists of one or more ingots of precious metal bonded to a base metal. The base metal in strip form and the contacts in the form of a ridge or bar can be laminated into any strip width or thickness. The contacts can be bonded in single, double or double-double combinations. The wearing surfaces of the material are rolled to required tempers to give them a long service life. Contacts from this material may be blanked or formed around the ingots.

The company reports that the precious metal is hard rolled to produce dense, hard contact surfaces with highly desirable electrical and mechanical qualities. Costly assembly operations are said to be reduced to blanking costs because there is no waste of the precious metals.

Industry Must Take Initiative In Atomic Power Development, Case President Warns

1 1 1

American business was warned by Dr. T. Keith Glennan, president of Case Institute of Technology and former Atomic Energy Commissioner, in a recent speech, that it must take the initiative in establishing private development of atomic power for industry.

Dr. Glennan warned that: "Unless we make it our business—as individuals, as business and professional men, and as citizens—to think through and understand the implications of private development of atomic power for industry, we will find most certainly that government will dominate the field." He emphasized that history showed that such projects as industrial development of atomic energy are better accomplished by private enterprise than by government.

He cited four main arguments why immediate action should be taken by industry concerning the problem of atomic energy: (1) our sources of conventional fuels—coal, oil, gas—are not limitless and a time must come when alternative sources of energy will be absolutely

(Please turn to page 234)



DOW CHEMICAL saves thousands of dollars annually with BAKER TRUCKS

At the Pittsburg, California, plant of The Dow Chemical Company, five Baker Fork Trucks expedite handling of material in production, storage and shipping departments.

Two of these trucks transport 16" cylinders of ammonia—twelve at a time—from production to warehouse and from warehouse to shipment, and load them directly into boxcars or highway carriers.

The remaining trucks speed handling of chemical

products in bags or cartons on pallets — taking them from production to storage, where they are high-tiered to conserve floor space, and from storage to shipment, where further man-hour savings are made in loading.

Material was formerly transported manually and hand-stacked. Cylinders were rolled by hand, one at a time. The use of Baker Trucks has resulted in savings of thousands of dollars annually.

Write for your copy of the "Baker Handling Library" a new portfolio of actual case histories.

Baker

industrial trucks

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The Baker-Lull Corporation • Subsidiary, Minneapolis, Minn, Material Handling and Construction Equipment

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What are <u>your</u> requirements

any type of gear
in any size
and any material
for every
industrial purpose
custom-made
by Perkins!

No matter what your gear requirements may be — no matter how large or small the order — have PERKINS quote on them first.

PERKINS MAKES: helical gears, bevel gears, sprockets, ratchets, worm gears, spiral gears, spur gears with shaved or ground teeth, ground thread worms

PERKINS MACHINE & GEAR CO.

WEST SPRINGFIELD, MASS.

A Gear-Engineering Organization

NOTE 1: A new product is the Perkins Precision Spring Coiler. This coiler (patent applied for) turns out precision springs — any type, shape, size, from wire sizes .005 to .125.

2: Another new product – the Perkins "Bendit 15" – a patented metal forming machine bends and shapes sheets, rods; strips tubing into innumerable complex as well as simple forms that would be difficult or impossible to make by other means. Eliminates need for expensive tools or specialized skiils. Ht 47", net wt. 200 lbs. Write today for descriptive catalogs, prices etc.

(Continued from page 232)

essential; (2) one day we will have enough atomic weapons, as fissionable materials do not deteriorate like gunpowder but keep their potency for thousands of years; (3) no one has as yet undertaken the task of attempting to reduce the costs of a reactor designed for power production—until this is done the economic practicability of power generation by atomic energy cannot be determined; (4) control by the government of peacetime uses of the atom would not be in the best interests of solving industrial problems.

The first step to bring about the participation of industry should be to alter certain portions of the Atomic Energy Act of 1946. Said Dr. Glennan: "The real stumbling block is the problem of secrecy in atomic matters. The Atomic Energy Act requires that we continue to behave . . . as though the Russians did not have the atom bomb." He questioned "the desirability or the necessity of holding back from our people much of the information now classified as 'Restricted Data' in the reactor field."

Small Gyroscope Available on Mass Production Basis

The world's smallest rate gyroscope will be made available for the first time on a mass production basis at volume prices, according to an announcement from the United States Time Corporation, Waterbury, Conn., and Sanders Associates, Inc., Nashua, N. H.

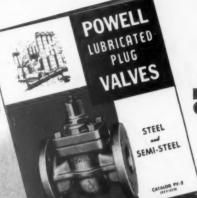
The significance of the joint program is that it will prove of incalculable value to the armed forces because it will mean the speed-up, through large scale manufacture, of high quality gyros at the lowest possible cost for use in guided missiles, fire control systems, aircraft instruments and radar antenna stabilization.

Sanders will continue to handle the research, development and pilot production in their Nashua plant while USTime will go into full scale production at their Middlebury, Conn., plant.

The subminiature gyroscope, which is 1 inch in diameter, less than 2 inches long and weighs less than 3 pounds, meets specifications that larger gyroscopes cannot attain. It is contained in a metal cylinder and its motor drives the rotor at 24,000 RPM, attaining this speed from a dead start in under

(Please turn to page 236)

New.



and too good to miss!



Now, for the first time, lubricated plug valves that carry the Powell name and measure up to the Powell standards of precision are available in Semi-Steel and Carbon Steel.

You'll want the new PV-2 Catalog in your files. In fact, no valve file can be considered complete without it. And it's so easy to get. Just fill out the coupon below and mail. No charge, no obligation.

As you page through the catalog, you'll see the details that maintain these great new valves in the century-young Powell tradition. Features include quick and positive operation—just a quarter-turn of the Lubricated Tapered Plug to open or close. Lubricant grooves surrounding each port provide a positive seal when the valve is closed. In an open position, seating surfaces are not exposed.

Powell Lubricated Plug Valves are available with Screwed or Bolted Glands. Semi-Steel Valves are available for 175 and 200 pounds W.O.G. Carbon Steel Valves are available for 150 and 300 pounds W.P.

Powell Valves

THE WM. POWELL COMPANY . DEPENDABLE VALVES SINCE 1846 . CINCINNATI 22, OHIO

Free!

SEND FOR THE

... it's too good to miss!



THE WM. POWELL COMPANY 2509 SPRING GROVE AVE., CINCINNATI 22, OHIO

Gentlemen

I want to bring my valve file up to date. Please send me a copy of your PV-2 Catalog on Powell Lubricated Flug Valves.

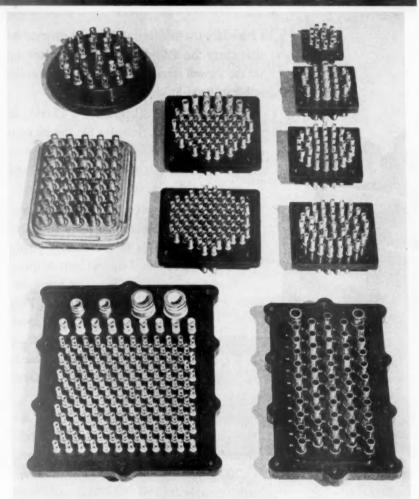
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CITY ZONE STATE

Just a few of the many Disconnect Panels molded

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KUHN & JACOB





Burndy disconnect panels for pressurized bulkheads must be molded with great precision and accuracy. The many metal inserts must be absolutely secure so as to allow fast, sure connections. KUHN & JACOB has met Burndy's exacting specifications for many years. Why not let us quote on YOUR requirements?

KUHN & JACOB MOLDING & TOOL CO.

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REPRESENTATIVE

NEAREST YOU

S. C. Ullman, 55 W. 42nd St., New York, N.Y. Telephone—Penn 6-0346 Wm. T. Wyler, Box 126, Stratford, Conn. Telephone — Bridgeport 7-4293 Wm. A. Chalverus, Carson Road, Princeton, N. J. (Continued from page 234) ten seconds. It is hermetically sealed, requires no heaters or thermostatic controls, is temperature compensated and unusually insensitive to shock and vibration.

> Doorless Telephone Booth Shuts Out Noises



An improved doorless telephone booth with double the density of the sound absorbing materials previously used has been announced by the Architectural Products Division of the Burgess-Manning Company, Chicago, Ill. The new Scout model, which shields the head and shoulders of the user, has been treated with additional sound absorbing material to increase its effectiveness in trapping noise that interferes with 'phone conversations. The company claims that the performance of the improved small model phone booth compares more favorably with the loudness reduction of 50% for the full length booth. Panels of acoustical material that line the inside of the booth trap both high and low frequency sounds.

South Bend Lends Machine Tool Models for Shop Layout

1 1 1

Scale models of machine tools for making shop layouts are now offered on a free loan basis by the South Bend Lathe Works. Several models each of nine different machine tools are included in a standard kit. Also included in the kit are models of mechanics, and floor plan layout sheets cross-ruled to the same scale as the models.

To use the models effectively, it is only necessary to sketch the shop room floor plan to scale on the cross-ruled layout sheet, indicating locations of doors, windows, columns, stationary benches, and other fixed facilities. The machine tool

(Please turn to page 238)

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Thousands of metal-working plants and foundries everywhere use *Normalized shot and griexclusively for four good basic reasons . . . four reasons that add up to maximum efficiency, greater economy and increased production:

- Top Quality assured by continuous research and new development.
- 2. Uniformity guaranteed by close labora tory control.
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Write for our new catalog.

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Metal Abrasive

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811 East 67th Street * Cleveland 8, Ohio Howell Works: Howell, Michigan

One of the world's largest producers of quality shot, grit and powder — Hard Iron — Malleable (*Normalized) — Cut Wire — Cast Steel (Realsteel)

*Copyrighted trade name



CLEVELITE*

Laminated Phenolic Tubing

ENSURES BETTER PERFORMANCE IN COUNTLESS ELECTRICAL PRODUCTS . . AND . . . LOWERS PRODUCTION COSTS.

Clevelite is known the world over for its moisture resistance, dimensional stability, high dielectric strength, low loss and great physical strength. It meets the most exacting specifications.

Proven applications include . . . armature shaft spacers, insulators and brush holders; relay stack insulators and spacers, rectifiers, and as the outer casing on mercury contact relays, as well as replacements for other materials in tubular form.

Available in diameters wall thicknesses, and lengths as desired.

Why pay more? For the best . . . Call CLEVELAND!

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CLEVELAND CONTAINER (6 6201 BARBERTON AVE. CLEVELAND 2, OHIO • All-Fibre Cans • Combination Metal and Paper Cans

• Spirally Wound Tubes and Cores for all Purposes

Cleveland Container Canada, Ltd.: PLANTS AND SALES OFFICES: Toronto and Prescott, Ont. • SALES OFFICE: Montreal.



(Continued from page 236) models are then placed on the floor plans and moved around until a satisfactory arrangement is obtained.

The model kits are loaned without charge or obligation to any established organization that can use them for planning a new shop or the rearrangement of present shop equipment. The borrower is expected to pay transportation costs both ways, and to return the models promptly. Although a good number of model kits are now ready for distribution, shipments will of course have to be made in the order requests are received.

Those who are interested in borrowing a model kit can secure full information direct from the South Bend Lathe Works, at South Bend, Indiana. Bulletin 5301 describes the South Bend Shop Layout Model Kit.

Coating Will Protect Metals Against Temperatures To 5000F

A new quick-drying material that can be sprayed like paint on metal to make the treated surface capable of withstanding temperatures as high as 5000 degrees Fahrenheit has been developed by The B. F. Goodrich Company, Akron, Ohio.

Called "Pyrolock", a one-sixteenth inch coating of the new insulation protects metal for as long as ten seconds against flame temperatures hotter than the melting point of metals.

Announced by Clyde O. DeLong, president of the rubber company's Industrial Products Division, Pyrolock is described as "a water base inorganic material unique in the field of thermal insulation".

Pyrolock is non-toxic, non-flammable, non-explosive and will adhere directly to clean metal surfaces without sandblasting or use of priming surface preparations. The dried layer of Pyrolock bonds itself to metal with a strength that withstands sharp impact short of actual deformation of the base metal. Resistant to most solvents and chemicals, the material also withstands indefinitely temperature cycles of minus 60 degrees F. to plus 165 degrees F.

Looking toward the potential use of Pyrolock in industry, DeLong says that the present material can be easily modified for use anywhere where resistance to flame and high temperatures is needed. A modified version of Pyrolock for broader use in industry would provide for adhesion to many types of surfaces, withstanding water, acids, alcohol and the affects of weather.

DISTRIBUTOR

he gives you "Fire Engine Speed" in delivering your orders



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"Bachelor of Saws" specially educated in cutting tool applications



Aiways Ready to "Hunt Down"

New Ideas



Business Services that save your time and money

He comes on the jump... any time of the day or night... when the alarm sounds from your plant for quick delivery of Simonds Saws, Machine Knives or Files. So you don't have to sit by and watch valuable production time go up in smoke for want of replacement cutting tools.

This is one of the vital services which your Simonds Industrial Supply Distributor is always ready to offer you . . . quick delivery that saves you time . . . ample stocks that are always available . . . simplified paperwork (one order, one bill, one payment) . . . hunting down new product developments . . . help in solving engineering problems. And he knows the practical application of Simonds Cutting Tools . . . the tools that are 100% quality-controlled, from steel to finish-grinding. So call the nearest Simonds Distributor at any time. He'll come at the drop of a hat . . . any hat you want him to wear!

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DICKENS 2-4900

standardize on standard

SOLID STEEL COLLARS



now size-marked for easy identification



42 stock sizes—each marked with shaft diameter for easy identification—are now available at your HALLOWELL distributors'. And these precision machined solid steel collars—in sizes from \%" to 3" inclusive—have the famous self-locking Unbrako Socket Set

Screw to assure positive positioning on the shaft. Write for literature and the name of your nearest HALLOWELL distributor. STANDARD PRESSED STEEL Co., Jenkintown 31, Pa.

Our Fiftieth Gear : A START FOR THE FUTURE

HALLOWELL POWER TRANSMISSION DIVISION



Standard Oil to Simplify Color Scheme For Drums

Standard Oil Company (Indiana) has adopted a simplified, uniform color scheme for its 55-gallon and 33-gallon drums—a bright blue it hopes the buyers will identify with its product.

A. C. Sailstad, general manager of sales, said that by October 1, most Standard Oil drums will be a solid "Brite Copen Blue," a shade between sky blue and vivid blue.

"In the past we have had separate colors for drums—some solid, some with a band around the middle, some with different colors on the heads—to identify our various types of products," Mr. Sailstad explained.

Standard expects the new system to cut costs and inventories of drums and paints, reduce waste, simplify procurement, and make filling operations more efficient according to the general manager.

Exceptions to the new light blue color system will be:

Drums containing low flash-point products will continue to be red as required by state and other regulations. Those containing 2,4-D will be the new blue with a purple band.

Resin-lined drums used for highflash napthas and refined oils will be orange.

Drums used for some black oils and asphalts will remain black.

A Sound Idea Cuts Scrap, Boosts Output

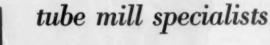
A unique "industrial stethoscope" that speeds up burnishing operations while reducing scrap loss and operator fatigue, has been successfully introduced in Minneapolis-Honeywell's aeronautical manufacturing plant in Minneapolis.

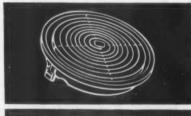
The new system utilizes the fact that the volume of sound in such finishing operations is in direct proportion to the amount of metal being removed. By using a microphone, amplifier and earphones (or speaker) sound from the burnishing wheel is amplified to guide the operator in holding extremely close tolerances. Tied in with the operation of the stethoscope is an electronic comparator to check dimensions. This instrument is accurate to 5 millionths of an inch, which is 500 times as small as a human hair.

The new system, installed on two (Please turn to page 244)



You can rely on TRENTWELD...a product of









TRENTWELD

WHATEVER your tubing application, TRENTWELD will give you long, trouble-free service.

That's because TRENTWELD is rolled and welded by tube engineers in a mill devoted exclusively to the production of quality stainless and high alloy tubing. An exclusive fusion-welding process, in which no filler rod is used, insures a sound weld indistinguishable from the parent metal, and of exactly the same analysis.

TRENTWELD possesses great mechanical strength and corrosion resistance. Flare, bend, and crush tests all demonstrate that tube failure does not occur at the weld.

And when it comes to tubing sizes and finishes, Trent offers the widest range in the industry . . . from ½" to 40" O.D. and up.

Millions of feet of TRENTWELD have been fabricated into thousands of products, with perfect results, by users who demand the best in stainless and high alloy tubing. When you have a tubing application, remember — you can't buy better tubing than TRENTWELD.

STAINLESS STEEL TUBING

TRENT TUBE COMPANY, GENERAL SALES OFFICES, EAST TROY, WISCONSIN (Subsidiary of CRUCIBLE STEEL COMPANY OF AMERICA)



Ask your industrial distributor...he knows



that Bond 40-A-MH Series Casters are the right casters for handling heavy loads—easily! Double ball races that absorb side shock and vertical load are pressure lubricated for frictionless running.

All Bond 40-A Series Casters, including the 40-A (medium duty); 40-A-MH (heavy duty); 40-A-H (extra heavy duty), are "workhorse" casters. They are available in 5 wheel types; in wheel diameters from 4 to 12 inches; load ratings up to 4500 pounds.

Remember, your best buy is Bond—and your distributor is always interested in helping you select the right Bond Casters for your work. Ask him too, for a copy of Bond Catalog K-38 or write direct.

BOND FOUNDRY & MACHINE COMPANY

Manheim, Pennsylvania

(Continued from page 242) burnishing machines, has reduced scrap loss by minimizing "over shooting" of the tolerance point. Ted Minor, who conceived the system, explains that it takes only onefiftieth the thickness of a human hair to mean the difference between scrap and a finished product. Operators formerly were prone to lean over their machines to "hear" how much metal was being removed by the burnishing wheel. The new system not only obsoletes this practice but reduces fatigue since the operator can monitor the operation while sitting in a normal, comfortable position.

New S.B.A. Leaflet Discusses Depreciation

A new leaflet, designed to aid small businessmen by explaining a sound approach to depreciation costs, has been announced by the Small Business Administration.

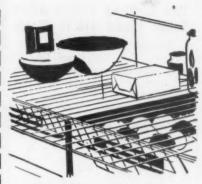
The leaflet, Depreciation, Deterioration, and Obsolescence, is Number 34 in the series of Management Aids and may be obtained free from SBA field offices.

In a competitive industrial climate, the leaflet explains businessmen should deal with depreciation on a reasoned, analytical basis, and the purpose of the leaflet is to provide concise and useful background knowledge which the businessman may apply to specific situations in his own plant.

The leaflet discusses what is meant by depreciation, the deterioration factor, the obsolescence factor, how to carry depreciation charges on account books, depreciation expense as an income tax deduction, the effect of changing price levels on depreciation accounts, how to determine when equipment should be replaced, and consideration of depreciation as a cost in setting sales price.

Steel Warehouse Roster Ready

The 1953 Roster of Members of the American Steel Warehouse Association, '442 Terminal Tower, Cleveland 13, Ohio, has just been published and is now available for \$1.50 postpaid. The 112-page publication contains the names, addresses, and telephone numbers of nearly 800 warehouse distributors of industrial steels. These warehouses are listed alphabetically and by 24 market areas.

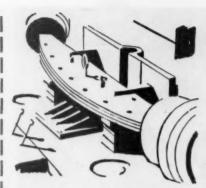


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ALCOA® ALUMINUM takes all finishes that other metals will take plus gleaming, rust-resistant anodic coatings which are best on aluminum.



*TOOL AND JIG PLATE - Forming and bending dies for aluminum shapes are economical when made of Alcoa Tool and Jig Plate. It is a cast product. Stress relieved, with close tolerances of flatness and surface smoothness.



FABRICATING this double-wall fuse cap formerly involved an expensive welding operation. Now it is impact extruded by a single press stroke at Alcoa's Edgewater (N. J.) plant.



*FASTENERS of aluminum are made by Alcoa in every commercial size and shape. A must with aluminum assemblies, they also dress up wood and plastic products.



*INDUSTRIAL BUILDING SHEET of Alcoa Aluminum is light and easy to install. It never requires painting or maintenance—costs far less than you'd think.



ALCOA COVERED WIRE is widely used for secondary distribution and service drop cable. It is light, easy to install-costs far less than copper conductor.

Products marked' are available from your local **Alcoa Distributor** listed here



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rmingham Hinkle Supply Co.

CALIFORNIA

Los Angeles
Ducommun Ma
& Supply Co.
Pacific Metals
Co., Ltd. San Francisco Pacific Metals Co., Ltd.

COLORADO

enver Metal Goods Corp.

CONNECTICUT

Milford Edgcomb New Engl

FLORIDA

Hialeah Florida Metals, Inc. Jacksonville Florida Metals, Inc. Tampa Florida Metals, Inc.

GEORGIA

Atlanta
J. M. Tull Metal
& Supply Co., Inc.

ILLINOIS

Chicago Central Steel & Wire Co. Steel Sales Corp.

LOUISIANA

New Orleans Metal Goods Cor

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Baltimore Whitehead Metal Products Co., Inc.

MASSACHUSETTS

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MICHIGAN

Detroit
Central Steel &
Wire Co.
Steel Sales Corp.

MINNESOTA

Minneapolis Steel Sales Co. of Minn.

MISSOURI

Kansas City Metal Go Louis Metal Goods Core

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NEW YORK

Buffale
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NORTH CAROLINA

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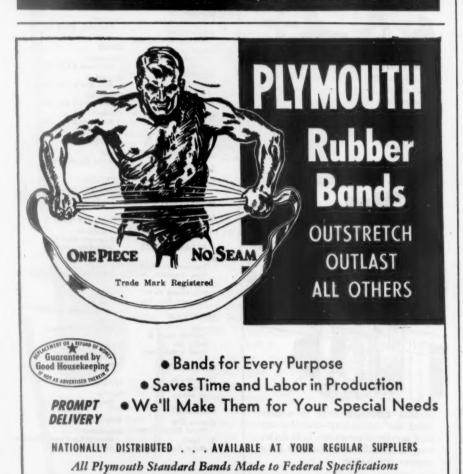
A Metal Arts die-embossed name plate on your new or established product reflects quality and adds sales appeal. Made to your engineer's specifications in any shape, form, design, color, with

either vitreous or duco enamel, or if desired, we will create a distinctive name plate for you.

The many leading companies using Metal Arts name plates are your assurance that there's no finer name plate for your product.

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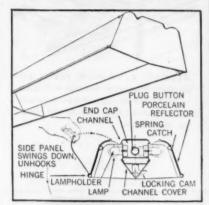
METAL ARTS CO., Inc. Dept. 6 Rochester, N. Y.



PLYMOUTH RUBBER COMPANY, Inc., Canton, Mass.

New Lighting Fixture Offers Better Visual Aid in Plants

A lighting fixture, the product of the F. W. Wakefield Brass Co., Vermilion, Ohio, makes possible a better visual environment in a plant. It contributes to the upward illumination of a factory with a rugged unit, the



major reflecting surfaces of which are in porcelain enamel firmly bonded to steel. The unit offers a lamp choice of: two 40W pre-heat; two 40W rapid start; two 85W pre-heat; two 72W slimline. Upward component is 25%. Approved bricktype ballasts assure full light output. All reflecting surfaces face downward and are ventilated to discourage dust accumulations. Chain hangers, cable clamps and stems allow suspension choices.

New Bright Nickel Process Gives Better Coatings, Is Cheaper

A new organic-type bright nickel process is said to produce better and brighter nickel coatings at lower cost, and to be easier to control than other commercial processes now available.

The new process, called Nickel-Lume, was developed by Hanson-Van Winkle-Munning Co., Matawan, N. J.

Both installation and operating costs are lower. Equipment suitable for a Watts nickel bath is all that is required. Ordinary auxiliary equipment may be used, filtration may be either periodic or continuous, ventilation is not required and heat demands are up to 25% lower.

Characteristically, deposits with the Nickel-Lume process have:

1. A bright white color. The deposits approach the whitness of the well-known cobalt-nickel deposits.

2. Well-leveled surfaces. Nickel-Lume reduces surface roughness by 50% and over. This cuts down or eliminates costly polishing or buffing operations.

3. Low internal stress. To pre-(Please turn to page 250)



The A. O. Smith Corporation has found that Summerill Steel Pressure Tubing consistently meets their high quality tubing standards. For Summerill Seamless Tubing withstands internal pressures that would cause other tubing materials to quickly fail. It flares easily, and takes sharp bends in stride without flattening or developing an "orange peel" effect on the bend.

Summerill Pressure Tubing is Quality-Controlled from raw materials to finished product in one of the nation's most modern tubing plants. Only prime raw materials are used. As a result, you can depend on Summerill for top uniform quality of product—regardless of whether you buy a single length or by the carload. And remember this: Not one Summerill customer has ever received a "leaker", or reported a pressure tubing failure! Summerill Pressure Tubing is available in lengths up to 38 feet. • For further details or technical assistance, call or write: Summerill Tubing Company Division, Columbia Steel & Shafting Company, Pittsburgh 30, Penna.

W&D 4600



SPECIFY Summerill AND BE SURE!

OCTOBER, 1953

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Count on Atkins for the newest developments in hacksaw blades—new alloys, new cutting edges to meet your exact needs, to speed your production, to cut your costs.

Silver Steel A-TUNG
SAWS SOLIO
Made in URL
NOW

ATKINS MS 6/4 P Silver Steel A-MOL SOLID Made in U.L.A.

ATKINS MW 614 P A.MOL Silver Steel WELDED EDGE Hole in V.S. New A-TUNG

Tungsten 18-14-1

...cuts the extra

New A-MOL

Solid Molybdenum

...tops for all-round cutting

A-MOL

Welded Edge Molybdenum

...a general purpose blade of proved performance.

Whatever you saw, there's an Atkins saw that does it better!

ATKINS

ATKINS SAW DIVISION, BORG-WARNER CORPORATION

Indianapolis 9, Indiana

(Continued from page 248)

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vent cracking, crazing and lifting of deposits, the compressive or tensile stress in these deposits may be easily controlled. What's more important, stress may be held within satisfactory limits as the solution ages.

4. Good ductility. In comparative nickel tests, Nickel-Lume foils have shown surprising ductility, which continues after the bath ages.

5. Highly active surfaces. Deposits accept chromium without any activating treatment.

Fiberglas Baffles Reduce Plant Noise By 50%

1 1 1

Noise and clamor from metal stamping machinery in the plant of John Volkert Metal Stampings, Inc., has been reduced approximately 50 per cent by millions of minute fibers of glass.



Acoustical engineers measured a 50% reduction in noise after installation of baffles.

The problem of noise control in the Long Island plant, which turns out precision metal stampings for the electronics industry, was solved with the installation of Fiberglas Noise-Stop baffles which are rigid fibrous glass boards that hang vertically from ceilings.

Three hundred twenty baffles were installed in a 5,000 square foot area in the plant with the result that noise has been sliced in half and employees have a more pleasant place in which to work.

The baffles are manufactured by Owens-Corning Fiberglas Corp., Toledo, O. They are 24 by 48 inches and one inch thick and are hung primarily in factory areas where overhead obstructions prevent the installation of a conventional acoustical ceiling.

They absorb noises that normally would strike the unyielding surface

PURCHASING

of a ceiling and bounce back into the working area. The baffles are covered with a thin plastic film which transmits sound waves by diaphragmatic action into the tiny, dead air pockets between the fibers of glass.

Establish "One-Stop" Service For Institutional Purchasers

In what is believed to be the first cooperative sales-service program of its kind, The Englander Company, Inc. and Royal Metal Manufacturing Company, both of Chicago, are joining forces to supply hospitals, schools, hotels and institutions with a complete line of furniture and bedding.

The result will be "one-stop" service for institutional purchasers of everything from mattresses and beds to laboratory stools and lounge

equipment.

Englander produces beds, dualpurpose sleep equipment and mattresses. Royal Metal manufactures case goods, chairs, tables and accessories.

The company heads said the institutional divisions of each firm would sell the products of the other along with its own line. Thus salesmen for either company will be able to offer a potential buyer every piece of furniture needed to equip his institution.

New Type Fire Extinguishing Agent in Full Production

A new type of fire extinguishing agent, several times as efficient as carbon tetrachloride, now is in fullscale production at Eston Chemicals Division of American Potash & Chemical Corporation.

The compound is known chemically as methylene chlorobromide, and is commonly referred to as "CB." It was first developed in Germany during World War II, but only recently began to gain wide acceptance in this country for use in

fire control equipment.

In addition to being several times as efficient as carbon tetrachloride, CB has a much lower level of human toxicity. It is being used almost exclusively in all the newer types of U.S. Air Force planes. An added advantage in aviation use is a substantial weight saving per unit of effectiveness, as compared with other fire extinguishing agents.

Eston Chemicals is exploring further uses of CB both in the military

and civilian fields.

OCTOBER, 1953

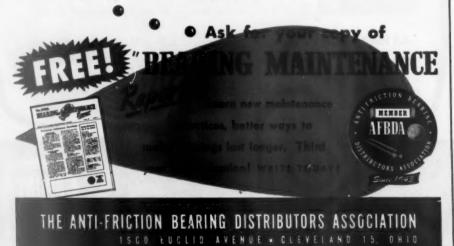






Ask your AFBDA member whose years of experience as a "Bearing Specialist" qualify him to know which bearing is best for you — which bearing will give long, trouble-free service at the most economical cost.

AFBDA members serve all industrial markets—
one is as near as your telephone. The AFBDA
membership seal he displays is a guide to an ethical
bearing distributor whose main interest is
serving his customers to the best of his
ability! Call him NOW!



Sees No Competition From Atom Power in "Foreseeable Future"

"The weight of expert opinion puts the commercial use of atomic energy a long way off" declared J. E. Tobey, president of Appalachian Coals, Inc., recently.

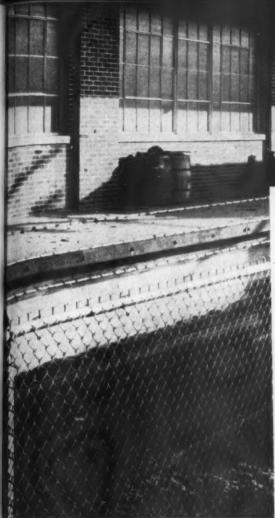
Yet, he said, some of the news stories coming out of hearings before the Joint Congressional Committee on Atomic Energy recently gave the general public an idea that atomic power for industrial useparticularly for the generation of electricity-can become a reality in the near future. All that is needed. they implied, is the willingness of Congress to invest sufficient millions of dollars for its development. "Actually" Mr. Tobey said, "the conflicting testimony regarding types, sizes, and cost of projected power reactors should in itself convince the most optimistic observer that even adequate experimental plants are not yet in immediate prospect."

Electronic "Brain" Makes Completely Automatic Elevators Possible

An electronic "brain" that makes elevator service in busy buildings completely automatic was demonstrated recently by the Otis Elevator Company. Automatic supervisory systems already in use coordinate the operation of a bank of elevators according to any one of several dispatching programs. But even with automatic group supervision, the elevator starter had to watch lobby traffic and the changing pattern of lights on his indicator panel, decide which dispatching program and interval would best handle the prevailing traffic, and switch the supervisory system to the desired settings.

Now, with automatic program selection, the traffic analyzer continually records passenger calls and waiting time data, and the program selector automatically puts into effect the appropriate dispatching program and interval. When the traffic pattern changes, the control system adjusts service accordingly.

The system anticipates the morning and evening rush by putting into effect the up-Peak or down-Peak program, respectively. The peak program stays in effect for the duration of the rush period. At all other times, the traffic itself determines which program is in effect. Automatic program selection frees the starter of all responsibility for elevator supervision.



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*CONTINENTAL Fence Erection Service Assures

A Lasting and Secure

Installation

The importance of proper installation cannot be over-stressed. Erection of rust-resistant copper-steel Continental fence by our trained erection crews combines superior materials with experienced skill. This teamwork gives you a complete protection program . . . and added years of dependable fence security.



How Many OF THESE ADVANTAGES Does Your Security Program Provide?

- REDUCED EXPENSE IN GUARDING PROPERTY
- CONTROLLED ENTRANCE AND EXIT TO PROPERTY
- SECURITY IN LABOR DIFFICULTIES
- REDUCED ACCIDENT INCIDENCE AND LIABILITY
- INCREASED OUTDOOR STORAGE SPACE
- REDUCED FIRE RISK, LOWER INSURANCE RATES
- BETTER APPEARANCE, HIGHER PROPERTY VALUE
- LASTING PROTECTION AGAINST THEFT, VANDALISM

... The Feature-Packed Fence with 14 Structural Advantages

When you select Continental Fence, you automatically add years to the life of your security program. You get "hot-dip" completely galvanized fence plus a higher tensile strength wire fabric. You get more post and top rail ties, and rugged framework embedded in solid concrete. You get stronger and more easily operated electrically welded gates and locking devices. You get all this and many more outstanding Continental fence features in all 10 Continental fence styles. See your nearest Continental Fence Representative, or write to Continental Steel Corp., Kokomo, Ind.

*Trade Mark Reg. U. S. Pat. Off.



CONTINENTAL STEEL CORPORATION

GENERAL OFFICES . KOKOMO, INDIANA

PRODUCERS OF Manufacturer's Wire in many sizes, shapes, tempers and finishes, including Galvanized,

KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, Lead Coated, and special wire.

ALSO, Coated and Uncoated Steel Sheets, Nails, Continental Chain Link Fence, and other products.

Takes rough use — Gives long service



Quaker

WATER HOSE

Stands up under the toughest conditions... because it's built to take it. Always light in weight, extremely flexible, non-kinking, and easy to handle, Quaker water hose withstands weathering, abrasion, scuffing... even yanking and twisting. Quaker has a water hose for your specific task... from Hercules brand for general washdown service to Ironsides brand for high pressure jetting work. Your choice of horizontal braided, moulded braided, or wrapped construction. For long service and complete satisfaction, insist on Quaker for water hose.

Write for name of nearest distributor



Belting, Hose, Packing and Moulded Rubber of every construction for every need.

QUAKER RUBBER CORPORATION DIVISION OF H. K. PORTER COMPANY, INC.

PHILADELPHIA 24, PA. Branches in Principal Cities

Wide Range Of Gears Deburred, Chamfered With New Machine

Modern Industrial Engineering Co., 14230 Birwood Ave., Detroit 4, Mich., is introducing high speed gear burring and chamfering machines to fulfill a long-felt need for gearmakers. The line of machines burr and chamfer the entire tooth form of both helical and spur gears from 56" to 91/2" pitch diameter, as well as external straight and involute form splines. Until this machine was designed, there was none capable of deburring and chamfering the complete tooth form-both sides and root-on so wide a range of gears. High productivity is not sacrificed to provide universal features as the Burr-Master finishes over 600 gears with 22 teeth per

Globe-Wernicke Reinstates Let-R-Guard Files In Line



The Globe-Wernicke Co., Cincinnati, has announced the reinstatement of the new, improved Let-R-Guard steel files into the company's line of steel filing cabinets.

In addition to Let-R-Guard's distinctive aluminum trim strip across the top and aluminum faced combination label holders and pulls, it is precision constructed of the finest furniture steel. Its one-piece top, front, and bottom is electro-welded to the wrap-around body to eliminate unsightly seams and corner joints.

The new Let-R-Guard Steel File is manufactured in two and four-drawer heights with a variety of insert drawers to meet varying office requirements. Files are finished in gray, green, grained walnut, and grained mahogany, with or without automatic locks.



Not when you use KIMPAK* 301!

New KIMPAK 301 is the practical solution to appliance surface scratching and other marring damage. KIMPAK 301's ability to shield the fine finish from abrasive high spots on the inner walls of cartons and blocking and bracing members of crates makes it the ideal protective agent in an appliance package. And KIMPAK 301 costs no more than ordinary materials. It is specially designed to prevent the three major causes of scratching:

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> 1. Abrasiveness of the inner spacers. Kimpak 301 provides a scratch-free, non-disintegrating, compressible barrier between inner spacers and the appliance finish. Its conformability ensures a snug package.

2. Dust, dirt, cinders that sift into the container. The combination of high creping and porous structure - exclusive with KIMPAK-traps dirt, grit or cinders, which may lodge between the packaging material and the surface.

3. Abrasive action of harsh packaging materials. KIMPAK 301 is soft and non-abrasive . . . free from wood splinters, dirt and other abrasive materials. No lumps, hard glue spots or stiff wrinkles.

Scratching is but one of many problems encountered in appliance packaging. These problems are solved with KIMPAK 301. For more details, contact the KIMPAK distributor in your area, or mail coupon below.

SPECIFY KIMPAK 301 TO SOLVE THESE INTERIOR **PACKAGING PROBLEMS:**

Scratching Pressure-marking Staining Corrosion Conformability Ease of handling Appearance Disintegration

Whatever your protective interior packaging requirements, there is a Kimpak specification that does the job . . . better!

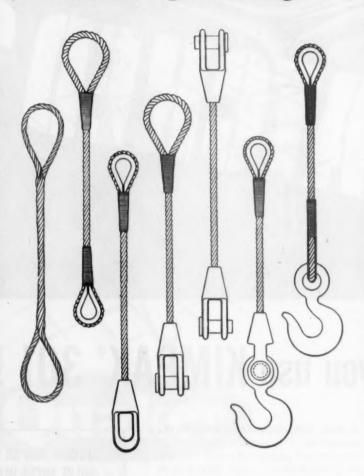


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UPSON-WALTON'S long experience in the manufacture of wire rope and rope fittings pays off when it comes to slings. Factory assembled by skilled craftsmen, Upson-Walton slings are tops in strength and safety.

Upson-Walton slings are sold through selected distributors everywhere to assure you of quick delivery and a wide choice of associated fittings. Catalog on request.

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MANUFACTURERS OF WIRE ROPE, FITTINGS, TACKLE BLOCKS - ESTABLISHED 1871

Weld Strength Galculator Prepared by Lukens

A unique weld strength calculator has been made available by Lukens Steel Company, Coatesville (Pa.) for the convenience of all those interested in steel plate fabrication.

A companion tool to Lukens' plate size selector, the weld strength calculator is a durably-made plastic slide rule that indicates both the size of weld required for a given applied load, and the weight of a given length of weld in lbs. The calculator gives values for stresses ranging from 2,000 to 20,000 p.s.i., and applied loads of from 9,000 to 450,000 lbs.

On the reverse side of this pocketsize calculator, basic design data for welded connections is graphically shown, and formulas for calculating nominal properties of welded connections are listed in convenient form.

U. S. Steel Making Hits All Time 12-Month High

1 1 1

The steelmaking furnaces in the United States poured over 114.6 million tons of steel in the past twelve months, an amount far above the greatest previous 12 months output in this or any other country, American Iron and Steel Institute recently announced.

That high total—about 2¾ times greater than Russia's expected output this year—includes 9,401,000 tons of ingots and steel for castings made in August 1953, a production record for that month.

In the first eight months of this year the steelmaking furnaces poured 76,622,609 tons—the largest amount ever made in a comparable period of time. The output of the first eight months last year, when production was curtailed by the strike of steelworkers, was about 55.1 million tons. The output in the first eight months of 1951 was about 69.7 million tons.

August was the seventh month this year in which steel production exceeded nine million tons. In March the monthly output rose above 10 million tons for the first time in history. The output in July was 9,275,673 tons.

The production in August was at the rate of 94.1 per cent of capacity as rated January 1, 1953, against a rate of 93.1 per cent of capacity for July.



FISH find this particular line of brass spinners so attractive that fishermen's demands have built annual sales of the Aeroplane Tackle Manufacturing Company of Denver to more than two million lures of all types.

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The high finish on the spinner is part of the secret. While the cost of producing this is of no interest to the fish, it is to the manufacturer. Recently all brass orders were changed to Formbrite*, the superior ANACONDA Drawing Brass that has enabled this firm to cut polishing costs over 25%, and on several stamped products to produce the required finish by tum-

bling only prior to lacquering or plating.

Formbrite, with its superfine grain, provides a surface far superior to ordinary drawing brass. It is stronger, harder, more scratch-resistant than ordinary brass, yet retains remarkable ductility for forming and drawing. It's a premium product at a non-premium price. If these features lure you, we should like to show you how this better brass can cut your product's finishing costs. Or write for Publication B-39 to The American Brass Company, General Offices, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Limited, New Toronto, Ontario.

Upper lure is Formbrite. Lower one is made of ANACONDA Fancy Pattern Embossed Brass.

Thirty-five years ago a fisherman, disgusted with his luck, cut up an old brass bait box to make himself a spinner resembling an old-time airplane propeller. Both fish and fisherman liked it so much, he started what is now a big and thriving business.

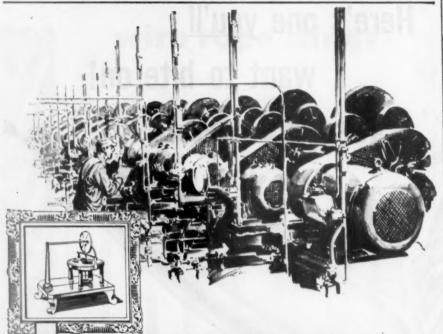
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Formbrite

DRAWING BRASS

An ANACONDA® product made by The American Brass Company

DOW CORNING SILICONE NEWS



We've outgrown Mrs. Davenport's petticoat

Our dependence upon electricity has grown fast since 1837 when Tom Davenport used his wife's petticoat to insulate the first electric motor. Now electricity cooks and freezes for us; turns night to day. It carries sights and sounds through the air; drives the machines that make mass production possible.

But improvements in the insulating materials that harness electricity have lagged behind. The greatest single improvement came less than ten years ago when Dow Corning introduced the first silicone resins. Chemical cousins of glass, these resins complement glass cloth, mica and asbestos. They double the power per pound ratio in electric machines; multiply their life expectancy by ten. Here's a typical example of what that means. To increase output of chemicals, engineers

rewound 31 motors with Silicone (Class H) Insulation; increased pumping capacity by 30%; saved \$50,000.

Rated at 50 and 60 hp, those motors were rebuilt with Class H insulation to deliver 75 to 90 hp. It would have cost \$68,200 to install new, conventional 75 hp motors. Rewinding cost only \$19,000. And failure rate on the old 50 and 60 hp motors was one a month, 48 failures in 4 years. Rewound with Class H insulation, those same motors have delivered at least 50% more power for 4 years with only 6 failures. Equally useful in the form of fluids, lubricants, protective coatings, water repellents and rubbery solids it will pay you to find out how

Dow Corning Silicones Save Money, Increase Sales

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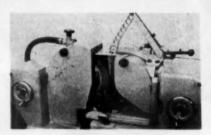
Speed Reading Offered As Correspondence Course

Executives who are unable to get through their reading, and who live too far from an established reading improvement center, can now speed up their reading via home-study.

Speed Reading Institute, Inc., 381 Fourth Ave., New York, N. Y. has announced the release of a correspondence course in speed reading. Originally used to speed up the reading of executive groups in the main offices of General Foods, American Telephone and Telegraph, McCormick and Company and other companies, the course has been packaged for home study to train executives in far flung company outposts.

The ten-session course, which has been licensed by the New York State Department of Education, is unique in that it does not rely on any mechanical equipment. Improvement for the first few executives to complete the course has averaged around 85% above starting speeds, the firm states.

German Firm Adapts Centerless Grinder For Production Work



Eric R. Bachmann Co., 27-11 41st Ave., Long Island City, N. Y., is distributor for the Herminghausen centerless grinder made by the Herminghausen - Werke G.m.b.H., Hannover-Wuelfel, Germany. It is claimed that the German firm has successfully and for the first time adapted a standard centerless grinder for production grinding of rotors and rotor shafts for small electric motors. The centerless grinder comes in three models with capacities up to 5%", 11/4", and 4" diam, respectively. The rotors together with their shafts are introduced into the centerless grinder by means of a feed arm. All machines are available for infeed or throughfeed.

Classified Section
See Page 374

England: Midland Silicones Ltd., London

It the Squeeze

on Atmospheric Hazards
with these M·S·A
PORTABLE INSTRUMENTS

Scouting out suspected areas that may contain harmful and dangerous combustible and toxic concentrations is an easy, fast operation with these M.S.A. Portable Instruments. A few squeezes of the aspirator bulb draws in the sample, gives you a quick, accurate story on concentrations. The instruments are economical, easy to maintain. Write for details.



M·S·A BENZOL INDICATOR

Extra sensitive to benzol concentrations. Detection range—from 0 to 100 parts of benzol per million parts of air. Compact, rugged.



M·S·A COMBUSTIBLE GAS INDICATOR

Immediately indicates whether test sample is below, within or above the explosive range.

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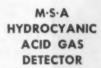
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M·S·A AROMATIC HYDROCARBON DETECTOR

The scale, separately graduated for benzene, toluene, and xylene provides accurate determination of hazards. Field-filled detector tubes assure highest accuracy for every test



COMBUSTIBLE GASES

M·S·A EXPLOSIMETER

Detects and measures explosive

concentrations of gases and vapors in atmosphere. One-hand opera-

tion. Easy-to-read dial.

Easy-to-read scale gives accurate story on harmful HCN concentrations. Range—from 0 to 50 ppm in air. Compact, self-contained for on-the-job efficiency.



M·S·A HYDROGEN SULFIDE DETECTOR

Detects hydrogen sulfide from 0 to 50 ppm or 0 to 400 ppm in air.



M·S·A CARBON MONOXIDE TESTER

Indicates CO from 10 to 1,000 ppm in air. Simple to use. Accurate in the presence of water and gasoline vapors. No special training . . . ideal for onthe-spot checking.





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Personalities



IN THE NEWS

Donald S. McCleary has been named District Purchasing Agent by the Continental Foundry & Machine Co. Pittsburgh, to succeed the late E. M. Mc-Nally.



Donald S. McCleary

Mr. McCleary was with the engineering and, later, the purchasing department of U. S. Steel from 1925 until he joined Continental as a buyer last year.

The Mid-Continent Supply Co., Ft. Worth, Texas, has announced the appointment of P. Z. Hilliard as Director of Purchases.

Mr. Hilliard is a veteran of 19 years service with Mid-Continent and has previously served them as management coordinator at Ft. Worth and as New Orleans district manager.

Anthes Force Oiler Co., Ft. Madison, Iowa, has announced the appointment of Clifford A. Pritchard as Purchasing Agent and Office Manager.

Formerly assistant manager of the Ft. Madison Gas Company for six years, Mr. Pritchard succeeds John H. Meyertholen, who has resigned.

Mr. Pritchard has also been associated with the U. S. Employment Service and the CB&Q Railroad.

Eureka Williams Corp., Bloomington, Ill., has appointed Paul B. Cressor, Jr., as Manager of Purchasing.

He joined Eureka Williams in 1946 as process engineer and has been with the corporation's purchasing department since 1947. Previously, Mr. Cressor has been associated with Olds Motor Works.

Herbert C. Salzer has been appointed steel Purchasing Agent for the Motor Wheel Corporation, Lansing, Mich.

Harry F. Glair, Director of Purchases and long-time manufacturing executive of Standard Oil Company (Indiana), has retired from active duty.



Harry F. Glair

A director of the company since 1934, he joined Standard as a clerk in the machine shop at its Whiting, Ind., refinery 47 years ago.

Mr. Glair has been Director of Purchases since 1951 and is also president of the University of Illinois Foundation.

Tempel Manufacturing Co., Chicago, has appointed Henry W. Buerger to the newly-created post of Purchasing Agent. He had formerly been Director of Purchases for Eicor Inc.

George L. McCaffrey has been promoted to General Purchasing Agent for the Electric Auto-Lite Co., Toledo, Ohio, it was announced recently.



George L. McCaffrey

In his new position, Mr. McCaffrey will work under J. H. Lambrix, vice president and director of purchasing.

Mr. McCaffrey, who has been associated with Auto-Lite in Syracuse for the past 25 years, will headquarter at the Company's central offices in Toledo.

K. K. Boyd, formerly director of sales and purchases for Emery Industries, Inc., New York City, has been elected to the newly-created post of Vice President in Charge of Sales and Purchases.

The Deseret News Press, Salt Lake City, Utah, has appointed S. Ross Fox to the newly-created post of Purchasing Agent. Mr. Fox has previously been sales manager of the multimillion dollar printing plant.

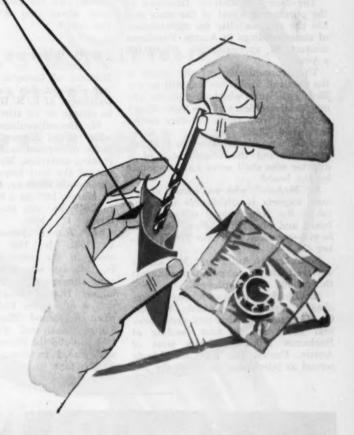
Robert A. Berger has been elected president of Macey-Fowler, Inc., distributors of executive furniture in Boston and New York. Mr. Berger, who had been vice president in charge of sales of Stow & Davis Furniture Co., Grand Rapids, Mich., joined Stow & Davis in 1937 as the company's Purchasing Agent.

TAILOR-MADE PAPER

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Bearings, fine tools and other precision-finished machine parts . . . so easily damaged by corrosion or handling . . . now find ideal protection in a new Riegel polyethylene-coated glassine, converted into a heat-sealed pouch. It provides an excellent antitarnish, greaseproof and moisture-vaporproof barrier . . . Fine enough for \$35 carbide drills . . . Economical enough for five-and-dime tools . . . Adaptable to high-speed automatic packaging.

Here is another example of Riegel's ability to make paper for almost any need. We now produce more than 600 grades, many with properties that would surprise you. Tell us what you want paper to do for you . . . write us now.



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INDUSTRIAL AILOR-MADE PAPERS

Two former vice-presidents of the National Association of Purchasing Agents have been appointed by Gov. Allan Shivers of Texas to serve on the recently reorganized three-man Board

of Control of Texas.

The purchasing agent members are C. F. McAuliff of Dallas, a former president of the Dallas association, for a six-year term, and Harry M. Lingle of Buchanan Dam, a former president of the Houston association, for a fouryear term. The other member of the board is R. C. Lanning of Jacksboro, former state senator, appointed for a two-year term.

The Board of Control functions as the purchasing agent of the state and has the responsibility for maintenance of state buildings in Austin. Purchases amount to approximately \$60,000,000

a year.

The reorganization of the board is the result of a new law enacted by the 53rd Legislature, which changes the administrative officers of the State Board of Control from three full-time members paid \$8,500. per year to three part-time members to be paid \$2.500. per year and the employment of a director who shall serve until removed by the board.

Mr. McAuliff, who was named chairman, expects to divide his time between the state capitol office of the board and his Dallas office, where he is vice-president of Texas Tie & Tim-

ber Co.

Both Mr. McAuliff and Mr. Lingle are well known to purchasing agents throughout the Southwest.

Mr. Lingle, who was formerly purchasing agent for Humble Pipeline Co., Houston, until his retirement several years ago, is now residing at Buchanan Lake, 60 miles west of Austin. During the war, Mr. Lingle served as purchasing agent on the Big

Inch Pipeline, built under the direction of the War Production Board.

Mr. McAuliff was an organizer of the Dallas association and an active member during his long association with the Texas Electric Railway as vice-president and purchasing agent. He is also secretary of the board of directors of The Southwestern Purchaser.

The appointments became effective September 1. The three members were sworn in at the governor's offices the previous day by Judge J. K. Woodley of the Court of Criminal Appeals. Following this, the board members had lunch with the governor at the mansion where they discussed plans for the board.

J. B. Hildebrand, General Director of Purchases for the Fisher Body Division of General Motors Corporation, Detroit, has announced the ap-pointment of E. S. Howell as a Buyer in charge of all trim yard goods.

Mr. Howell replaces Fred J. Walker who retired September 1st after 36 years of service in Fisher Body purchasing activities. Mr. Walker, who is one of the best known buyers in the automobile industry, first joined Fisher in March, 1917 as a buyer of supplies. In 1919 he was promoted to senior buyer.

Mr. Howell joined Fisher Body in 1931. In 1938 he became a clerk in the purchasing department. In 1943 he was promoted to buyer and subsequently became a senior buyer. During World War II he was a buyer for Fisher Body's tank plant in Grand Blanc, Mich. When Fisher reactivated it's tank plant in 1951 to build the Patton 48, Mr. Howell was placed in charge of all buying for the tank program.

John L. Gushman has been appointed a vice president in the Administrative Division of Owens-Illinois Glass Co., Toledo, Ohio, with over-all responsibility for the company's purchasing, traffic and trade relations ac-



John L. Gushman

Mr. Gushman has been with the legal department of the glass company since 1947 as counsel for the Glass Container Division. He is also a director of the Owens-Illinois Inter-America Corporation, a subsidiary handling trade in the western hemisphere.

Marcus N. Brooks, Purchasing Agent of the Standard Control Division, Westinghouse Electric Corporation, Beaver, Pa., has been appointed Purchasing Agent for the Television & Radio Division of the corporation at Metuchen, N. J., and Sunbury, Pa. Mr. Brooks will make his headquarters in Metuchen.

He has been associated with Westinghouse since 1941 and up until 1951 was located in Mansfield, Ohio, in the Home Appliance Division. He was transferred to Beaver, Pa., in November, 1951.

Mr. Brooks has been an active member of the Purchasing Agents Association of New Castle, serving on various committees and until his transfer, as director.

Wilbert A. Rath has joined the purchasing department of Jack & Heintz, Inc., Cleveland, Ohio, replacing Jack Mills, who has established offices as manufacturer's representative.

Mr. Rath's professional experience in purchasing covers more than 11 years. He has held buying and stock control positions with Clark Controller and Weldon Tool.

Due to an error, Purchasing stated that "William F. Haldeman has been named Director of Purchases for the Charles Bruning Co., Inc."
This announcement should have read,

"Harold Hosier has been appointed National Director of Purchases for the Charles Bruning Co., Inc."



Two well known Texas purchasing agents are shown being sworn in as members of the new Board of Control of the State of Texas, during ceremonies held in Gov. Allan Shivers' office. Left to right: Gov. Shivers, Sen. R. C. Lanning of Jacksboro, C. F. McAuliff of Dallas, Harry Lingle of Buchanan Dam, formerly of Houston, and Judge J. K. Woodley of the Court of Criminal Appeals, administering the oath.

Here are the QUALITIES that make the lowest tool costs in the long run!

DOUBLE CHRELE TOOLS

HAVE BOTH

endurance

accuracy

It takes both to produce quality tools . . . for each is dependent upon the other to give trouble free performance.

CHICAGO-LATROBE makes sure that the complete line of Double Circle Tools has both endurance and accuracy. It is a result of high quality CHICAGO-LATROBE standards . . . with each manufacturing step carefully checked . . . and the finished product scientifically inspected by experienced craftsmen to insure precision tools.

To back up CHICAGO-LATROBE'S determination of maintaining its enviable reputation for leading quality, every fifth employee is a qualified inspector. No finished tool can escape these skilled inspectors without having the qualities of both endurance and accuracy.

To insure low yearly tool costs it will pay you to specify DOUBLE CIRCLE TOOLS.





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No. 1-Precision Operations in the Manufacture of ACME Chains



All parts are made from carefully selected analysis of steels. The selective steel analysis for each chain part is based on bringing out the best physical qualities obtainable. All parts subjective to articulation have hard wear resistant surfaces to promote eminent life expectancy. The side plates or links which act as connecting members for the articulating parts are heat treated and tempered to insure great strength and ductility.

for STRENGTH and DURABILITY

Write Dept. 8A for new illustrated 76 page catalog on use and application of roller chains and sprockets.

Chair Componition Componition Holyoke Massachusetts

Thor Power Tool Company Aurora, Ill., has appointed Gail C. Wicks as Purchasing Agent. Mr. Wicks has been with Thor since 1945 and was their Assistant Purchasing Agent.

F. J. DeCrane has been appointed Director of Purchases for the Lamson & Sessions Co., Cleveland and L. J. Miller has been named Purchasing Agent.

Mr. DeCrane has been with the company for thirty-three years and has worked in virtually every department of the organization. He has been



F. J. DeCrane

actively engaged in activities concerning purchasing development for the past ten years, having served as president of the Cleveland Association of Purchasing Agents during 1948-49, and is a past director of the National Association of Purchasing Agents. In 1950 he served as local chairman of the International Convention of Purchasing Agents held in Cleveland. He succeeds G. W. Hinds who, after thirty-six years, retired on August 15th.



L. J. Miller

Mr. Miller, who succeeds Mr. De-Crane as Purchasing Agent, has had a number of years of purchasing experience in Greater Cleveland. He joined Lamson & Sessions in February of this year. After serving thirty-one months with the U. S. Air Force as a navigator instructor, he attended the University of Pittsburgh where he obtained a B.S. degree in industrial management.



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with versatile, easy handling, BEHR-CAT® Tape. The strong, thin, flexible crepe paper backing goes into place surely and easily on contours as well as flats. The carefully balanced "weatherproof" adhesive makes it fast to unroll, quick to stick, and sure to strip off cleanly every time. Try BEHR-CAT Masking Tape in your own plant for stenciling, masking, sealing, holding, and many, many other jobs all over the plant. Your Distributor can supply you. Or write direct to Behr-Manning Corp., Troy, N. Y., Dept. PU-10.

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JIGSAW PUZZLES
CAN BE AN
EXPENSIVE PASTIME!

And that is what is being done—wasting productive manpower in time consuming "jigsaw" assembly. Small fabricated parts can be cast in a single unit with better appearance and less cost by Sacks-Barlow and Newark Malleable.

Ask us to go over all of your parts and help you eliminate the costly "jigsaw" operations. You're sure to make worthwhile savings in production costs with our gray, malleable and ductile iron castings.

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NEWARK MALLEABLE IRON WORKS

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Resident Representatives in New York, Philadelphia, Boston, Baltimore and Providence, R. I.

R. C. Ingersoll, president of Borg-Warner, announced recently that E. S. Russey, president of the Warner Gear Division, has reluctantly agreed to release T. J. Ault from the position of vice president and purchasing agent of Warner Gear so that he can accept the promotion awarded to him as vice president and assistant general manager of Detroit Gear Division.



T. J. Ault

At Warner Gear, Mr. Ault has earned industry-wide attention for his integration of purchasing and production—a continuing program under which "purchasing" is scheduled to production and production is scheduled to purchasing."

Mr. Ault joined the Warner Gear Division in 1935, was named a buyer of production materials in 1938, was promoted to Assistant Purchasing Agent in 1940, and became Purchasing Agent in 1950. Last year he was elected to a vice presidency of the division.

Leo A. Wise has been named Director of Purchasing for the American Safety Razor Corporation, Brooklyn, N. Y.



Leo A. Wise

Mr. Wise started with the company 33 years ago as a stock boy in the factory. He later became a clerk in the purchasing department, assistant purchasing agent and in 1947 was appointed purchasing agent.

TRANSFORMER AND HIGH Check these advantages of RLSIMAG VOLTAGE CAPACITOR TERMINALS High surface resistivity High dielectric strength High mechanical strength METALLIZED HERMETIC TERMINAL ☐ High volume resistivity For sealing transformers and other electrical component Low loss factor Custom made for your requirements. Many standard designs shown in ☐ Low Porosity Bulletin No. 524 sent on request. Dimensionally accurate VITRIFIED ALUMINA Uniform CERAMIC Totally and permanently rigid ☐ Suitable as compression type or metallized for soft solder sealing ☐ Economically produced to your specifications in large or small quantities

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V Precision Cross Section

V Pre-finished Surface

In this age of specialization nothing serves like the highly trained craftsmanship and concentrated experience of the specialist. WYCKOFF has specialized in fine quality cold finished steels . . . rounds, squares, hexagons, special shapes, wide flats and precision shafting. When it comes to cold finished steels in these classifications . . . nothing could be finer.

WYCKOFF STEEL PRODUCTS

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Turned and Polished Shafting
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Wide Flats up to 12" x 2"
All types of furnace treated Steels



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Eaton Manufacturing Co., Cleveland, announces the addition of Paul W. Knox to its Central Purchasing staff.

James E. Caddle, who has been Purchasing Manager of the Old Forge plant of the W. L. Maxson Corp., New York, has been named Director of Procurement with headquarters in New York.

George B. Knights, Purchasing Manager at the Long Island plant of the firm, will replace Mr. Caddle as Purchasing Manager for the Old Forge Division.

JIVISIOII.

Ernest R. C. Brown, formerly general manager of Norcor Manufacturing Co., Inc., has joined Sterling Engineering Co., Inc., Laconia, N. H., as Material Control and Purchasing Manager.



Ernest R. C. Brown

Before joining Sterling, Mr. Brown was district representative of the National Metal Trades Association, Chicago, for New England, New Jersey, and metropolitan New York. For 21 years he was affiliated with Thompson Wire Co., Boston, ten of which he served as plant superintendent.

F. J. Wilson, Assistant Purchasing Agent and Steel Buyer for the Electric Auto-Lite Company, Toledo, Ohio, has

retired from his post.

Mr. Wilson joined Auto-Lite in 1915 as a timekeeper. Later he was transferred to the purchasing department and put in charge of buying supplies. Just after World War I, he was advanced to steel buyer for the rapidly growing firm.

W. H. Ross, former general storekeeper of the Rutland Railway Corporation, Rutland, Vt., has been appointed Assistant to the Purchasing Agent.

I. R. Kappler has been named General Purchasing Agent for the tractor division of the Ford Motor Company, Detroit, Mich.

A. E. Berlinghoff, former supply officer for the Richmond (Va.) regional office of the Office of Price Stabilization, has been appointed Purchasing Agent of Henrico County.



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... the doorway to better gears!

When your gear orders pass through this doorway, you can leave your gear worries on the doorstep.

Skilled Illinois Gear men take over immediately with the newest and finest precision gear making equipment available anywhere.

Your order will be filled on time with gears that measure up to your most demanding specifications for accuracy, finish and high quality.



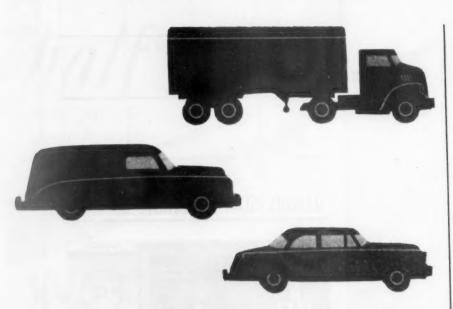


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Gears for Every Purpose ... one gear or 10,000 or more
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Chicago 35, Illinois



EVERY VEHICLE IN YOUR FLEET SHOULD BE EQUIPPED WITH

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Lug-Reinforced

TIRE CHAINS

Campbell's patented Lugs dig in for traction that keeps sales calls, deliveries and service calls on schedule—protects you and your employes against the hazards of winter driving.

Campbell Truck and Bus Chains are furnished in color-coded bags ... make identification easy, save time in handling. Campbell Lug-Reinforced Chains for passenger cars are packaged in sturdy boxes with handy chain applier.

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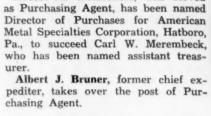
CAMPBELL

CAMPBELL CHAIN Company

MAIN OFFICE: YORK, PA.

West Burlington, Iowa; Portland, Oregon; Sacramento, Calif.

Chain for every need ... industrial ... marine ... farm ... automotive



Robert M. Wetherhold, who served

Forest Lumber Co., Pittsburgh, has appointed Robert G. Brown as an As-



Robert G. Brown

sistant Buyer succeeding Edward J. Brown, who is now the company's western sales representative.

D. L. Sharpe, who has been a member of the Cleveland Worm and Gear Company and the Farval Corporation Purchasing Department for the past several years, has been appointed Purchasing Agent to succeed A. G. Hopcraft, who died on April 22nd.



D. L. Sharpe

Prior to joining the Cleveland organization in 1946, Mr. Sharpe spent five years as a buyer for Pesco Products Co. Previous to that, he had been associated with Cleveland banking activities for 20 years. In addition to his primary job, Mr. Sharpe has spent the past five years teaching classes in Purchasing at Fenn College.

Wagner ELECTRIC MOTORS ... the choice of leaders in industry

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Wagner Quality Motors for your product or your plant

Whatever your motor requirements may be—single-phase or polyphase, 1/125 hp or 400 hp—Wagner can offer a standard motor that is entirely dependable in its specific application. The wide variety of motors shown here is typical of the many motors and motor modifications in the complete Wagner line.

At right is TYPE RP—open type polyphase squirrel-cage motor. It is drip-proof and suitable for all general purpose applications. 1/6 to 400 hp.



SINGLE-PHASE



TYPE RB—Split-phase Induction. For easy starting applications with high starting current. 1/20 to 1/3 hp.



TYPE RK—Capacitor-Start Induction. For general purpose applications requiring high starting torque—normal starting current. 1/6 to 5 hp.



TYPE RG—Repulsion-Induction. For high starting torque applications involving a very long starting period. 1 to 5 hp.



TYPERA—Repulsion-Start Induction. For general purpose applications with high starting torque—low starting current. ½ to 15 hp.

POLYPHASE MOTORS



TYPE XP—Splashproof. Protected against splashing or dripping liquids. 3/4 to 200 hp.



TYPE TP-Totally-enclosed, non-ventilated. Fully protected. 1/4 to 15 hp.



TYPE CP—Totally-Enclosed Fan-Cooled. Protected against dirt, chips, obrasives or fumes. Steel frame. 1 to 250 hp. Also in explosion proof type HP.



TYPE EP.—Corrosion-resistant Totally-Enclosed Fan-Cooled. Cast iron frame. 2 to 250 hp. Also available in explosion proof type JP.



TYPE RS-1—Wound Rotor. Constant or adjustable varying speed. I to 250 hp. TYPE RS-2 for intermittent service. 2 to 200 hp.



GEAR MOTORS—Single-phase or Polyphase. Open or enclosed types. 1/20 to 50 hp.

* * *

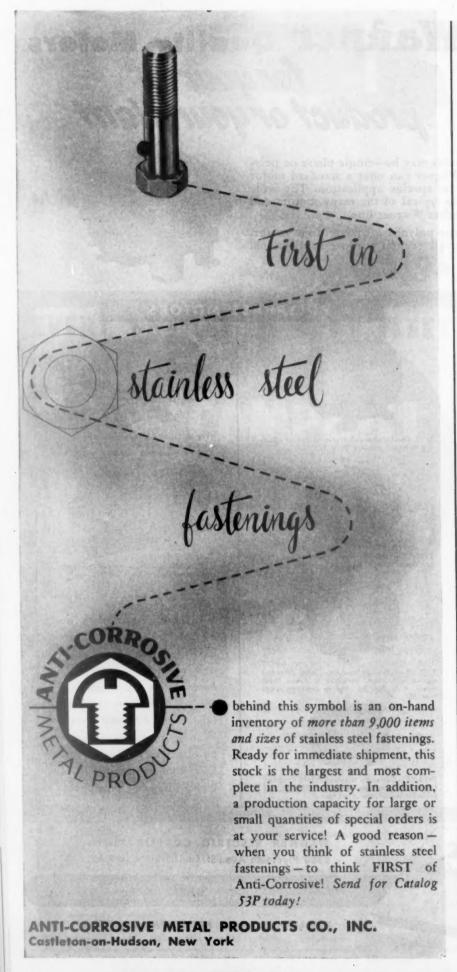
In addition to a complete line of motors, Wagner also furnishes Increment Type Motor and Starter Combinations, Jet Pump Motors and a complete line of Transformers: Drytype, Distribution and Power. Wagner engineers welcome an opportunity to serve you. Consult the nearest of our 32 Branch offices, or write direct.



WAGNER ELECTRIC CORPORATION 6360 Plymouth Ave., St. Louis 14, Mo., U.S.A.

ELECTRIC MOTORS - TRANSFORMERS - INDUSTRIAL BRAKES AUTOMOTIVE BRAKE SYSTEMS - AIR AND HYDRAULIC

BRANCHES IN 32 PRINCIPAL CITIES



The Plume & Atwood Company, Waterbury, Conn., has announced the appointments of Russell E. Jacobs to Purchasing Agent and Edward G. Landers to Assistant Purchasing Agent. Mr. Jacobs will be responsible for all purchasing activities in both the Waterbury Fabricating Division and the Thomaston Rolling Mill Division of the company.

Mr. Jacobs joined Plume & Atwood in 1947 as an employee in the stock-room of the company's Thomaston Rolling Mill Division. In a relatively short time he was made responsible for the division's stores and in 1951 he was named a Buyer working out of the Waterbury Fabricating Division. A year later he was promoted to Assistant Purchasing Agent.

Mr. Landers has been a Plume & Atwood employee for the past 13 years He started in the mill and has held such jobs as laboratory assistant, sheet mill floorman, and foreman of the finishing department.

Benjamin Electric Manufacturing Co., Des Plaines, Ill., has appointed Ralph C. Nelson to the position of Purchasing



Ralph C. Nelson

Agent to succeed the late L. W. Kester. Mr. Nelson is a 30 year veteran with the company.

Perry A. Gill has been named Purchasing Agent for Sunray Oil Corp., Tulsa, Okla.

Mr. Gill joined Sunray in 1946 as district engineer for the North and West Texas operations. In 1948 he was named superintendent of production in the area.

Oliver C. Stratton has been named Director of Purchasing for the Meletron Corp., Los Angeles. Mr. Stratton was associated with Paramount Pictures Corp. for 18 years, serving as Purchasing Agent since 1948.

Edward Stern & Co., Inc., Philadelphia, appointed Richard Moses as Purchasing Agent. He was most recently with Appleton-Century-Crofts, handling production.

TAYLOR Bone Grade Vulcanized Fibre

is an extremely tough and dense grade of vulcanized fibre. It is excellent for applications where difficult machining operations are required . . . resistant to organic solvents, oils and gasoline . . . has excellent electrical characteristics.

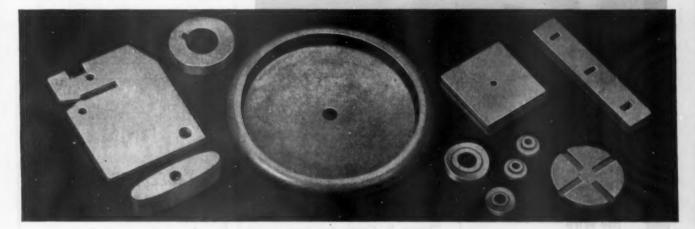
Want to make something of it?

Make it into gears, cams, fairleads, bushings and grommets, slot wedges, threaded and tapped pieces, rail joint insulation and other applications where mechanical strength, good finish and intricate machining are required. Color: gray.

Make it from sheets or rolls with these specifications:

SPECIFICATIONS

Thickness ra	nge 1/32" to 1/2"
Finish	Pressed and calendered
Punching .	Up to 3/16" thickness
Sheet size	Approx. 56" x 90"
Roll width .	56" for thicknesses of 1/32" through .060". Coils down to 7/32" for thicknesses of 1/32"
	through .090".



Make it from turned rods. Diameters from 1/8" through 1/2" with ground or buffed finish.

Make it easy for yourself the next time you are looking for an extremely dense, abrasion resistant material. Call your Taylor Engineer . . . he will be glad to work with you . . . go over your requirements . . . and help you select the correct grade of Taylor Vulcanized Fibre to fit your needs—Bone, Commercial, Super White, Abrasive and Built Up. Ask him about Taylor Laminated Plastics, too. He will be glad to give you samples of Phenol, Melamine and Silicone Laminates for your inspection.

Let us make it for you in our Fabricated Parts Division. We are equipped to turn out parts to your exact specifications . . . at the right price . . . with deliveries to match your production schedules.

Taylor Fibre Co., Norristown, Pennsylvania-La Verne, California

TAYLOR Laminated Plastics

Vulcanized Fibre



C. Warner McVicar, Director of Purchasing and Traffic for Rockwell Manufacturing Co., Pittsburgh, will deliver a talk on "The Value of a Purchasing Manual to Purchasing and Management" at meetings of five purchasing agents associations this fall.

He addressed the Purchasing Agents Association of New Orleans and the Mississippi Association of Purchasing Agents in September.



C. Warner McVicar

A former director of the Purchasing Agents Associations of Detroit and Washington, D. C., Mr. McVicar is now education committee chairman for the Sixth District of the National Association of Purchasing Agents and director and education committee chairman of the Purchasing Agents Association of Pittsburgh.

State Labs, Inc.. New York City, has named **Alfred Grien** as vice president in charge of purchasing.

Mr. Grien formerly supervised purchasing for the Almel Co., and was previously associated with Fisher Distributing Corp. and the Philco Corp.

Thomas K. Carson has been named Assistant Purchasing Agent for Kaiser Aluminum and Chemical Corporation's Mead reduction plant.

Mr. Carson has served at both the Mead and Trentwood plants before being sent to Kaiser's Tacoma plant in 1951. He will assist John Burrows, the Mead plant Purchasing Agent.

The appointment of Warren E. O'Leary, head clerk of the Arlington, Mass., public works department, as town Purchasing Agent, was announced recently.

J. Emmet Judge has been named Assistant General Purchasing Agent of Lincoln-Mercury, according to C. S. Brown, General Purchasing Agent. In addition to Mr. Judge's assignment, it was announced that S. A. Cornell has been named Manager of the Purchase Analysis Department and F. S. Strong as Senior Buyer for the Service and Accessories Section.

STOP Slamming Doors! KANT-SLAM Hydraulic Door Check

\$995

Delivered.



Thousands in Daily Use in Every State in U. S.

Closes

Large or Small Doors, Screen Doors and Gates — Easily, Gently, Smoothly

Stops

Slamming . . . Banging . . . Broken Door Glass . . . Insects . . . Drafts . . . Heat Loss

KANT-SLAM closes doors with efficiency of human hand. Hydraulic action—NOT an air check—piston works in oil. 3 years trouble-free service guaranteed. Price about half of other hydraulic controls.

works any place along hinge side of door—top, middle or bottom—either right or left hand doors. KANT-SLAM is completely self-contained — door and hinges are absolutely free of any strain or pressure. Holds door open when past 90 degrees.

Only one size Check required—three sizes easily detachable springs available for various size doors. Simple screw adjustment for closing speed. Attractive dark bronze, metallic lacquer finish, hammered bronze effect.

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35 W. SPRING ST. BLOOMFIELD, INDIANA

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...with TYCOL lubricants on hand!

The "All-Weather" Bearing Lubricant! Steel mills have shown a lively interest in Tycol Acylkup 4, a year 'round bearing grease that does a variety of jobs with a complete disregard for thermometer readings. Although all methods of application are suitable, one "3-Furnace" mill has found it particularly adaptable for use in its automatic grease systems — with complete ease of pumping even in the coldest weather. From Blast furnaces:

Sheave Bearings, Bell Mechanism, Skip Hoists, etc.... to Coal and Ore Bridges, Tycol Acylkup 4 is a natural for lubricating yard equipment in every steel mill. With two big savings: "all weather" protection ... and lowered maintenance costs on automatic pressure systems. For details, contact your local Tide Water Associated office!

Over 300 Tycol industrial lubricants are at your disposal . . . engineered to fit the job!

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INDUSTRIAL Developments



Plans to build a \$10,500,000 armor plate producing plant were announced recently, by Lukens Steel Co., Coatesville. Pa.

The building will house the most modern armor plate producing equipment, including continuous heat treating furnaces. One furnace will heat plates to 1650 F and will be equipped with a combination spray quench press that flattens red hot plates as they are sprayed with cold water. The second furnace will heat plates to the drawing temperature of 1250 F.

The equipment will also include two cold plate roller-levelers (one to flat-

ten plates up to 200 in. wide and two in. thick; the other to flatten plates up to 120 in. wide and ½ in. thick), and a 5,000-ton capacity press to flatten plates over two in. thick.

The Westinghouse Electric Corporation plant at Attica, N. Y., which has been building industrial stokers, will become a branch plant of the Westinghouse Motor and Control Division, whose main plant is in Buffalo.

The Attica plant will produce parts for electric motors and other products with the present management staff remaining in charge of operations. New Brunswick, N. J., will be the site of Graybar Electric Company's 113th location when the proposed 20,-000 square foot office and warehouse building is completed.

The new branch will handle a complete line of electrical supplies for contractors, industrial plants and research laboratories and will be located at 2762 Livingston Ave., in the heart of New Brunswick's industrial area. It will be easily accessible to all major highways and will provide a spacious parking area and convenient counter service.

It is expected that the branch will be open for business by November 30.



DOUBLE HEADER: Members of the Purchasing Agents Association of New Orleans went to Baton Rouge, La., recently to visit the plants of Thos. J. Moran's Sons, printers, and the Ethyl Corporation. The association was guest of Thos. J. Moran's Sons for lunch at The Village. In the afternoon the Ethyl Corporation guided the purchasing agents through its enormous multi-million dollar plant. The plant is the world's largest producer of ethyl chloride and supplies every major oil company in the United States, Canada and Mexico. The plant visitations are arranged by Chairman Al Claverie.



Crucible's wire mill is equiped with the finest annealing, pickling, and drawing equipment . . . all of which means greater production of better wire. And our mill metallurgists check every operation from billet to finished product to

Call us when you have a stainless wire application. We can help you.

Stocks maintained of:

Rex High Speed Steel . . . ALL grades of Tool Steel (including Die Casting and Plastic Die Steel, Drill Rod, Tool Bits and Hollow Drill Steel) . . . Stainless Steel (Sheets, Bars, Wire, Billets, Electrodes) Max-el . . . AISI Alloy, Onyx Spring and Special Purpose Steels

first name in special purpose steels

53 years of Fine steelmaking

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Branch Offices and Warehouses: ATLANTA . BALTIMORE . BOSTON . BUFFALO . CHARLOTTE . CHICAGO . CINCINNATI . CLEVELAND . DAYTON DENVER . DETROIT . HOUSTON . INDIANAPOLIS . LOS ANGELES . MILWAUKEE . NEWARK . NEW HAVEN . NEW YORK . PHILADELPHIA . PITTSBURGH PROVIDENCE . ROCKFORD . SAN FRANCISCO . SEATTLE . SPRINGFIELD, MASS. . ST. LOUIS . ST. PAUL . SYRACUSE . TORONTO, ONT. . WASHINGTON, D.C.

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FOR SAFETY'S SAKE SAY



THE THOMAS LAUGHLIN CO., 104 Fore St., Portland, Me.

To meet the needs created by rapidly changing designs in the electronics and electrical industries, Transvision, Inc., New Rochelle, N. Y., has established a Special Transformer and Coil Manufacturing Division.

The department will be devoted to designing engineering and manufacturing of coils such as high frequency air core, multi-layer solenoids, peaking, synchro winding, television RF etc.

A substantial addition to America's supply of glycerine and Epon resins will result from a new Shell Chemical plant to be erected at Norco, La. It is scheduled for completion late in 1954.

The new plant, which will produce allyl chloride and epichlorohydrin, will increase Shell's glycerine production by 25,000,000 pounds per year.

by 25,000,000 pounds per year.

The Norco plant, an entirely new site for Shell Chemical, is designed to operate in conjunction with the Shell Oil Company refinery there and will use propylene and other feed stocks it produces.

Manufacture of its newly-designed line of AC and DC welders has been transferred by the Welding Products Division of A. O. Smith Corp., from Milwaukee to expanded quarters at Elkhorn, Wis. New construction is underway to add another 16,000 square feet to the Elkhorn plant.

The transfer of operations will enable Welding Products Division to better serve the increasing demand for its welding equipment. The division also has manufacturing facilities at Lancaster, Pa., and the Milwaukee home plant as well as factory service branches at Union, N. J., Dallas, Tex., Chicago Ill. and Oakland Calif.

A vacuum furnace for annealing tubing of the two "new" metals, titanium and zirconium, is being installed at the Norristown, Pa., plant of Superior Tube Co. The new furnace is the batch type and can handle tubing in lengths up to 24 feet.

The Superior Company is installing the furnace to help meet the demand for its recently announced line of small titanium tubing. After 6 years of metallurgical development, Superior has achieved mass production of titanium tubing in OD sizes from .125" to 1.500", and in wall thicknesses from .004" to .187". This new titanium tubing is particularly in demand for applications where resistance to high temperatures and corrosion are important.

Columbia-Southern Chemical Corp., Pittsburgh, Pa., will enter the ammonia production field with the construction of facilities at Natrium, W. Va.

Hydrogen, a by-product of the electrolytic production of chlorine and caustic soda at Natrium, will be utilized in the ammonia production. To date, the Natrium plant has burned the existing hydrogen supply as a fuel.



PRODUCE A BETTER ABRASIVE

Water . . . an important ingredient for segregating the tiniest diamond particles in a unique Elgin process . . . a vital step in producing a precision abrasive! After pure diamond bort has been shattered and mechanically sieved into 10 grades, the finest sieve grade is placed in a large glass vessel of pure water, mixed into a slurry and allowed to settle. The heavier, larger particles sink faster . . . forming cloudy "layers" suspended in the water. At specified intervals, an Elgin-developed process removes these "layers of water", thus segregating the various weights of diamond powder while still in suspension. The result is absolute particle uniformity . . so necessary in producing a precision abrasive for precision finishes.

Every step of production, from crushing and grading to the finished DYMO product, is performed in Eigin laboratories under the strictest quality standards. Where only the finest, most reliable abrasives can be used . . . be sure to FINISH WITH DIAMOND . . . ELGIN DIAMOND!

Ask for a free demonstration!

ABRASIVES



DIVISION

ELGIN NATIONAL WATCH COMPANY

ELGIN, ILLINOIS

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Here's how all Eigin Diamond begins . . . in an \$8,000 handful of pure, virgin diamond bort, the finest quality obtainable for abrasive production.

A special "shimmy" machine vibrates the diamond powder, separating it into 10 graduated sieves with meshes from 1600 to 105,625 openings per sq. in.

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Following the "layers of water" process, a final inspection checks the graded diamond dust for correct particle size and grade . . . ready for compounding into its vehicle.



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Ingersoll-Rand ROTARY ELECTRIC

IMPACTOOLS

THIS MULTI-PURPOSE IMPACTOOL is chopping hours off production and maintenance time every day in plants like yours! Compact, lightweight and powerful, it speeds toughest nut-running jobs—loosens and removes "frozen" nuts no wrench could budge!—and makes drilling, screw-driving and other daily repair work quick and easy.

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 Drills
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- 1900 rotary impacts per minute do all the work
- . No "kick" or twist to user
- Operates forward or reverse
- . Uses standard attachments
- . Motor can't stall or burn out

Workers find this the handiest tool around the plant. Time studies show it saves up to 90% of your nut-running time alone...saves muscle and manpower as well!

3 sizes fit every need . . . available in complete kits . . . easy to get from all leading industrial distributors and automotive jobbers. Ask for a demonstration or write for catalog PL-5024.



915.11



Jones & Laughlin Steel Corporation, Pittsburgh, has announced that its high-tensile low-alloy steels, known as "Otiscoloy", henceforth will go by the trade name of "Jalten".

The name change conforms to the pattern of other J&L trade names. These include "Jalloy", an alloy steel resistant to abrasion, and "Jalcase", a case-hardening, cold-finished steel used to make products like engine gears and roller bearings.

The Western Condensing Company, San Francisco, is constructing a 25,600 square-foot standardized steel warehouse at Appleton, Wis.

The warehouse, due to be completed in October, will nearly double Western Condensing's storage capacity at the site, which the company uses as a midwestern sales and distribution center for the dairy by-products it manufactures from whey.

Electro-Mec Laboratory, formerly located in New York City, has expanded its facilities for the manufacture of precision ultra-low-torque potentiometers by moving to a new plant in Long Island City, N. Y.

With over 15,000 square feet of floor space in a building designed for precision manufacture, the laboratory is fully air conditioned, with control of temperature, humidity and dust. Ample space is provided for design, production, engineering and development and restricted areas are set apart for work on classified projects.

Heldor Manufacturing Corp., well-known makers of transformer cans, condenser cans, component parts, and national sales agent for Heldor compression type hermetic seal bushings and terminals, has announced the moving of its plant and offices to 238 Lewis Street, Paterson, N. J.

The Bassick Co., Bridgeport, Conn., a division of the Stewart-Warner Corporation of Chicago, has announced the purchase of the industrial caster and wheel line now manufactured by the Kilbourne & Jacobs Co., Columbus, Ohio.

Continental Can Company's two recent acquisitions, the Benjamin C. Betner Co. and Shellmar Products Corp., have been consolidated into the company's new Shellmar Betner Flexible Packaging Division.

American-Marietta Company, Chicago, announced recently that it has purchased the remaining interest in Adhesive Products, Portland, Ore., from the United States Plywood Corp.

The new division has been under American-Marietta's management since March and was jointly owned by the American-Marietta Co. and the United States Plywood Corporation.

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TOWELS AND TOILET TISSUE Together!



You chop a big money-saving chunk off washroom expense every time you order Nibroc Towels and Toilet Tissue together. The superior softness, strength and absorbency of these Nibroc products for industrial and institutional use make them a prime favorite of Management for increasing user satisfaction and reducing maintenance costs.



Save money! Take advantage of quantity discount by ordering towels and toilet tissue together. For name of your nearest distributor and for towel and tissue samples, write to Dept. NG-10, Boston.

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CORPORATION, La Tuque, Quebec

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Bring down overhead the SHENANGO way!

Here are two reasons why Shenango parts will cut costs for you:

First, the high-strength, pressuredense castings produced by Shenango's centrifugal process... castings free from sand inclusions, blowholes and other defects ... are keeping work stoppage, lost production and premature part failure to a minimum for Shenango users everywhere.

Secondly, modern facilities and skilled workmen at Shenango turn out precision-machined parts exactly to your specifications. A real saving

in time and money over parts that almost fit perfectly.

Send for free bulletins. All sizes and types of symmetrical parts are produced by Shenango in rough, semior precision-machined finish. Bulletin No. 150 covers nonferrous metals; Bulletin No. 151 covers Meehanite Metal, Ni-Resist and special iron alloys. Write to...

SHENANGO-PENN MOLD COMPANY

Centrifugal Castings Division
Dover, Ohio

Executive Offices: Pittsburgh, Pa.

ALL RED BRONZES - MANGANESE BRONZES - ALUMINUM BRONZES

MONEL METAL . NI-RESIST . MEEHANITE METAL

Plans for a second electric furnace for production of elemental phosphorous at Monsanto Chemical Company's Monsanto, Idaho, plant, were announced recently.

The expanded capacity was made necessary by the increased demand for phosphate products, such as those used in detergents, organic plasticizers, insecticides, fertilizers, animal feeds, dentifrices, foods, and many industrial applications.

The new furnace will bring Monsanto's total to eight, with six in operation at Monsanto, Tenn.

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A steel warehouse specializing in sales of sheet and strip has been opened in the Lawrenceville district by the newly-formed Conners Steel Warehouse Inc., Pittsburgh, Pa.

The new Conners warehouse will deal exclusively in hot rolled and cold rolled strip and sheet.

The Bristol Company, Waterbury, Conn., has just completed an expansion program which greatly increases its capacity to manufacture Bristol Multiple-Spline and Hex Socket Screws.

The new facilities include a new building and the latest type of precision equipment for manufacturing and heat treating socket screws of all kinds in sizes from No. 0 to the largest sizes to the closest specification tolerances.

Ransburg Electro-Coating Corp., Indianapolis, Ind., has recently filed two suits for infringement of its patents.

One is against the Hamilton Manufacturing Co., Two Rivers, Wis., on U. S. Letters Patent entitled "Method and Apparatus for Spray Coating Articles". The other is against the Metaloid Co., Cleveland, on U. S. Letters Patent entitled "Electrostatic Method and Apparatus".

NEWS OF YOUR SUPPLIERS

The Sterling Abrasives Division of the Cleveland Quarries Company, Tiffin, Ohio, has appointed Philip de Veau as sales engineer for the state of Wisconsin.

Breuer Electric Manufacturing Co., Chicago, has named C. D. Hoover as regional sales manager for New England, upper New York, and Pennsylvania outside of Philadelphia.

Samuel N. Comly, vice president and treasurer of Russell, Burdsall & Ward Bolt and Nut Co., Port Chester, N. Y., has been granted a leave of absence from the firm to serve as assistant administrator of the National Production Authority, U. S. Department of Commerce.

Flying "taxis" that open up new roads

Miraculous rescue flights over Korean combat zones put helicopters in the spotlight. Soon, 'copters like these three leaders will open up more and more new "roads" in America's skies.

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Powered by always dependable, aircooled engines built by Lycoming, these helicopters are already used by industry as flying "taxis" to transport executives from plant to plant. Soon, major cities will get aerocab service from midtown terminals to airport flight lines. Later, every state in the union will get super "taxi" service between cities . . . and even commuter service from suburbs to hearts of business

Dependable Lycoming power has helped these leading helicopters achieve outstanding safety records. This is another Lycoming contribution to America's progress in the air; another reason why we say: "For efficient, dependable, aircooled power . . . look to Lycoming!"

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OCTOBER, 1953

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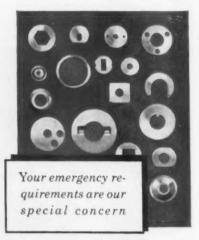




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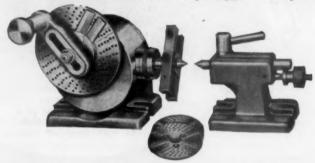
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L-W Model SD DIVIDING HEAD

Spindle Threaded 11/2"-8 to fit L-W 5" Universal Chuck

ACCURATE RUGGED 36 LB. S132.0

Heavy duty headstock and tailstock designed for maximum rigidity. Alloy steel threaded headstock spindle with extra large tapered bearing and takeup adjustment collar. Head tilts to 90° in vertical position. Alloy stress-proof steel worm and accurately cut worm wheel cut to close limits for accuracy. Ball bearing thrust and adjustable for end play. Complete with three index plates for dividing all numbers to 50 and even numbers to 100, except 96T. Index chart shows all divisions obtainable to 380. Right or left hand models.

Model BP 11" Swing for plain milling machines. Shipping weight, 140 lbs. \$225.00

Model AU 11" Swing. Fully Universal for complete \$327.50 indexing and spiral cutting. Shipping weight, 190 lbs.

Order from your industrial supply distributor or order direct, giving the name of your distributor.

L-W CHUCK COMPANY

38 So. St. Clair St. Toledo 4, Ohio, U.S.A.

The appointment of Joseph Caldwell, Jr., as assistant general sales manager, has been announced by Mills Industries, Inc., Chicago.

A re-alignment of responsibilities affecting three members of the sales organization of the American Steel and Wire Division, U. S. Steel Corporation, Cleveland, Ohio, has been announced.

The Spring Products Sales Division will be combined with the Manufacturers' Products Sales Division headed by Charles W. Meyers. Edmond J. Walsh will be assistant manager of the division in charge of rods, wire and cold rolled strip. Robert D. Knight will be assistant manager in charge of springs.

Herbert L. Freer, production planning manager, was named general sales manager in the Machine Tool Division, Van Norman Company, Springfield, Mass.

John F. Dirmann has been named division manager with offices in San Francisco for the Armour Laboratories of Chicago.

Robert J. Davis and Sidney B. Smith have joined the product development department of the chemical division of Celanese Corporation of America, New York City.

Mr. Davis, formerly associated with Colgate-Palmolive-Peet Co., will handle sales development of vinyl acetate. Mr. Smith, previously with Westvaco Chemical Division of Food Machinery and Chemical Corporation, will engage in market research work.

Acheson Colloids Co., division of Acheson Industries, Inc., Port Huron, Mich., has added James R. Ward research technician, and Walter D. Janssens, research assistant, to the staff of Acheson's Product Development Laboratory.

Gar Wood Industries, Inc., Wayne, Mich., has announced the appointment of Mark L. Shepard as manager of the Richmond, Calif., division. Mr. Shepard succeeds J. B. Steed, who reports to the company's Home Office in Wayne.

Robert M. Barnum has been appointed sales engineer for the Butter-field Division, Union Twist Drill Co., Derby Line, Vt. Formerly associated with the Bond Supply Co., Mr. Barnum will represent Butterfield in southern Michigan with headquarters in Detroit.

Two new vice presidents have been elected by the board of directors of Talon, Inc., Meadville, Pa.

Raymond Y. Bartlett was elected vice president in charge of sales and Walter S. Shiffer was named vice president in charge of engineering.

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PRIMER of POPULAR ALLOY STEELS

(All in stock at Frasse!)

A chrome-moly grade heat treatable for severe service under fatigue, abrasion, impact and high temperature stresses. Possesses self scaling characteristics and is well suited for forgings. Machinable at 72% of B1112. Principal uses: aircraft engine parts, piston rods, bolts, nuts, cylinders, cylinder liners, etc. Stocked by Frasse in aircraft quality bars, sheets and tubes to specs Mil-S-6758, Mil-T-6736, AMS 6307D and AN-QQ-S-685A.

Chrome-moly grades having high hardenability with good strength and wear resistance. Respond well to simple normalizing. Also develop excellent impact resistance when drawn in the upper ranges. Not subject to embrittlement after tempering or prolonged exposure to relatively high temperatures. Can be readily welded. In the heat treated condition these grades possess high tensile strength with good ductility, better shock and impact resistance and comparatively good machinability. Frasse stocks these grades both heat treated and annealed. Heat treated stocks are stress-relieved—this permits machining with a minimum of distortion. Annealed material machines at 66% of B1112, heat treated at 52%. Principal uses: valves, flanges, nuts, bolts, automotive parts—steering arms, axles, etc. Stocked by Frasse in bars—annealed, and heat treated to ASTM-A-193.

A nickel-chrome-moly grade. An air hardening steel developed to provide strength in the medium carbon range. Useful for heavier sections; good fatigue-tensile ratios provide higher margin of safety than most steels. Excellent torque properties. Water or oil hardening used with unusually large sections. Machinable at 57% of B1112. Principal uses: aircraft engine parts—crankshafts, propeller shafts, etc. Stocked by Frasse in aircraft quality bars to specs Mil-S-5000A and AMS 6415D.

Nickel-chrome-moly grades having good carburizing qualities. When carburized, develop uniformity of case, superior core toughness and relative freedom from distortion. Machinable at 66% of B1112. Principal uses: armature pinions, bearing races, cams, etc. Stocked by Frasse in bars.

A nickel-chrome-moly grade that offers excellent hardenability from heat treatment. Heat treats without distortion. Easily fabricated in the annealed condition. Possesses good welding qualities. Principal uses: aircraft parts—braces, struts, etc. Stocked by Frasse in aircraft quality sheets to AMS 6355D.

A nickel-chrome-moly grade with good fatigue-tensile properties, good toughness at high hardness, good depth hardness and response to heat treatment. Also possesses stability of structure at high temperature, good machinability (66% of B1112) and relative freedom from distortion. Principal uses: aircraft parts, differential gears, spindle shafts, etc Stocked by Frasse in aircraft quality bars to specs Mil-S-6049 and AMS 6322D.

Frasse stocks all the popular alloy grades—in a wide range of sizes—and offers its many years of alloy experience to assist you in their application.

Detailed information on the heat treatments for these grades can be obtained by writing Frasse—or better yet, call the Frasse office nearest you.

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LYNDHURST . • ROCHESTER • BALTIMORE

OCTOBER, 1953



Fasco flashers are installed as original equipment in many leading makes of cars and trucks.

Heart of the Fasco flasher is a Chace Thermostatic bimetal element which serves a dual purpose—making and breaking the signal light circuit and also protecting the wiring from short circuits and overloads.

In the illustration, the slotted element (A) closes the signal circuit contacts at (B), magnetically energizing frame (E) which pulls up armature (C) against pilot contact (D), lighting the dash pilot light and adding to the upward pressure on blade (A). Signal lamp current flowing through blade (A) causes it to heat and bend upward, breaking the lamp circuit and allowing (B) and (C) to fall and break the pilot light circuit. As (A) cools and touches (B) again, the cycle repeats.

Chace Thermostatic Bimetal is precision manufactured in 29 types, in strips, coils, random long lengths and welded or brazed sub-assemblies. Before proceeding with the design of your new actuating device, consult our application engineers, recognized authorities on temperature responsive devices—or write today for our 32-page booklet "Successful Applications of Chace Thermostatic Bimetal," containing condensed engineering data.



Harry S. Bowen, formerly assistant manager of sales of Pocahontas Fuel Co., New York, has been appointed southern sales manager of the company's new southern division with headquarters in Richmond, Va., according to an announcement for the firm's Home Office in Pocahontas, Va.

Mr. Bowen will direct the sales activities of representatives in Baltimore, Richmond, Greensboro and Raleigh and will have a staff of service engineers for customer consultation.

Gunnison Homes, Inc., New Albany, Ind., has changed its name to United States Steel Homes, Inc.

Further expansion of the nationwide industrial distribution organization of the Morse Chain Co., Detroit, was announced with the appointment of Abrasive and Supply Co., Detroit, as an additional distributor for the industrial area. This is the 21st Morse distributor added since the first of the year.

James E. Gathings and John Chiesl have been appointed as power transmission and conveying chain sales en-





J. E. Gathings

John Chiesl

gineers for the Dallas and Chicago district offices of Whitney Chain Co., Hartford, Conn.

Glenn C. Wilhide, recently retired from the United States Army, has been named manager of the Wayne division, Gar Wood Industries, Inc., Wayne, Mich. Mr. Wilhide had been Commanding Officer of the Detroit Arsenal from 1951 until his recent retirement.

Willys Motors, Inc., Toledo, Ohio, has appointed Joseph H. Pargeter as head of the steel forge operations of the company. Mr. Pargeter, who has been general manager of the Willys Aluminum Forge Division, Erie, Pa., since 1951, has been associated with Willys for more than 30 years.

American Wheelabrator & Equipment Corp., Mishawaka, Ind., manufacturer of blast cleaning machines and dust and fume control equipment, has announced a series of promotions.

Robert L. Orth, with 14 years service as district manager at Detroit, has been brought to the home office and made field sales manager. Julius E. Skene was appointed manager of customer service and Philip R. Jordan, chief sales engineer.



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THE NUMBER 5BC-6—the second part is seen on the bearing cup above—quickly tells you the size and type of this tapered roller bearing. But because it's on a *Timken* bearing, it also speaks volumes about the bearing's quality and the service that comes with it.



HE HEARS TEN-THOUSANDTHS OF AN INCH—At this electronic gage, the OD of Timken® bearing outer races is inspected by listening to a buzzing sound: one pitch for okay, another for reject. It's just one of the Timken Company's many quality checks. The gage operator, Simon Hisrich, is blind.

One number that speaks volumes



BEARINGS BY THE TON—Among the 5,850 sizes and 26 types of Timken tapered roller bearings, a few of which are pictured above, is the correct bearing to fit your needs. We have the capacity to turn them out in any quantity.



THIS INSTRUMENT analyzes steel in 40 seconds, helps insure closer control of the melt. Tighter quality control is the reason we make our own steel; no other U. S. bearing maker does. Quality and service make Timken bearings your number 1 value. And their public acceptance helps you sell your Timken bearing equipped products. Always specify "Timken" when you specify a bearing number. The Timken Roller Bearing Company, Canton 6, Ohio.

Quality, service and public acceptance make TIMKEN number 1 for VALUE

NOT JUST A BALL O NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER TO BEARING TAKES RADIAL AND THRUST- - LOADS OR ANY COMBINATION-



INDUSTRIAL WIRE SPECIALISTS

Keystone Steel & Wire Company
PEORIA 7, ILLINOIS

To attain the closest possible integration of all production facilities at the Westinghouse Lamp Division, Bloomfield, N. J., a number of new appointments and new posts have resulted to reorganize the manufacturing operations.

James E. Woodall, formerly a lamp division staff-assistant, has been appointed to the newly-created post of manager of manufacturing. The new post of manager of manufacturing engineering is to be filled by William J. Williams, formerly manager of parts plants.

Elwood W. Noxon, formerly manager of southern plants, has been appointed manager of northern plants and will be responsible for operations at the Trenton and Bloomfield, N. J., lamp manufacturing plants as well as the lamp base making plant at Belleville, N. J.

Charles T. Nichols, former manager of the Reform, Ala., plant, succeeds Mr. Noxon as manager of southern plants.

Robert B. Duthie has been made general manager of the Modern Process Plating Co., a subsidiary of Viking



Robert Duthie

Air Conditioning Corp., Cleveland, Ohio. Mr. Duthie had been serving as administrative engineer for Viking.

The assignment of three representatives to sales offices has been announced by the Trane Co., La Crosse, Wis.

Raymond O. Goodman has been assigned to the Chattanooga, Tenn., office and Robert E. Murphy joins the Milwaukee, Wis., office. Richard E. Haskins has been appointed to the Oklahoma City, Okla., sales office.

William H. Yeckley has been appointed to a new position of general manager of steel operations for the Youngstown Sheet and Tube Co., Youngstown, Ohio.

For the last three years Mr. Yeckley has been assistant to A. S. Glossbrenner, vice president in charge of operations.

Have you a similar use for this 1-piece fastener?





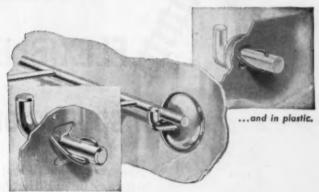
It's a Blind Rivet

...Or a removable fastener. It locks and unlocks with a 90° clockwise rotation. No mating parts such as nuts or receptacles are required.

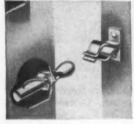
It's a Shelf Support

...For ranges or refrigerators—in plastic and metal.

Leading appliance makers have achieved
substantial installation savings through its use.



Both in metal...





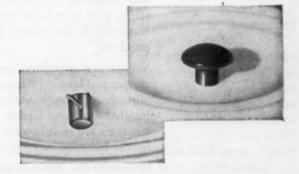
It's a Cabinet Door Strike

...Simple to install; eliminates welding and cuts assembly cost. Any head can be designed without affecting fastening principle.

It's a Lifter Knob or Dashboard Plug

...Plastic Spring-Lock heads are molded around steel inserts, giving strength at point of load or impact.

Any shape head can be molded in any color.



What's Your Application?

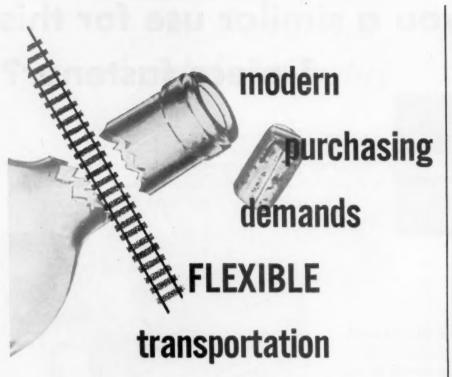
...Tell us how you can use Spring-Lock Fasteners in your products. We'll be glad to work out the details with you.

SIMMONS FASTENER CORPORATION 1743 North Broadway, Albany 1, N. Y.

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QUICK-LOCK SPRING-LOCK ROTO-LOCK LINK LOCK DUAL-LOCK

NEW 36-PAGE CATALOG WITH APPLICATIONS
SEND FOR IT!



Have you ever considered that the wisdom of your purchase may be nullified by excessive freight charges and delays in transportation?

Often these result from handling by too many earriers (particularly on long-haul shipments) and their lack of flexibility to circumvent delaying factors such as breakdowns, strikes, and floods.

On the other hand, if your purchase is carried by a nation-wide forwarder such as National Carloading Corporation, its routing is under our control all the way. Delaying factors are by-passed wherever possible, and you have only one call to make (to National) to determine the whereabouts of your purchase.

Shipment is expedited because of our door-to-door service and because the cars we fill on daily schedule move faster than those that must wait for additional freight. And your freight charges are low because our rates are based on the large over-all volume we handle between major points.

Whenever the choice of transportation is yours, particularly on purchases bought from companies a long distance away (also abroad), it will pay you to specify: "Ship via National Carloading Corporation." Try it and see!

manager. Mr. Coatney, with 20 years experience in selling, branch operations and general management, will coordinate the sales operations of the Ridgway organization.

Gordon E. Medlock, formerly assistant sales manager has been any

L. I. Ridgway Co., Chicago, has appointed Tom Coatney as general sales

Gordon E. Medlock, formerly assistant sales manager, has been appointed sales manager of Stearns Magnetic Inc., Milwaukee, Wisc.

Associated with the company since 1946, Mr. Medlock will be responsible for the sales of the company's complete line of magnetic separation and power transmission equipment.

Eddie Sawyer, former manager of the 1950 National League Champion Philadelphia Phillies, has been named



Eddie Sawyer

Philadelphia sales representative for Lurie Plastics, Inc., Colonial Heights, Va.

Wheeling Corrugating Company, Wheeling, W. Va., has established four sales divisions in its headquarters sales department.

F. S. Neal, former manager of Wheeling's Boston office and warehouse, is manager of the new Fabricated Sheet Metal Products Sales Division. E. H. Pace is manager of Mill Products Sales Division, W. B. Nern is Culvert Sales Division's manager and L C. Hollerbach becomes manager of Building Material Sales Division.

A. G. Lovejoy has been named to succeed Mr. Neal in Boston.

Joseph T. Galvin is now sales manager of the Plastics Division of Fabricon Products, Inc., River Rouge, Mich. He was formerly in charge of the company's New York sales office.

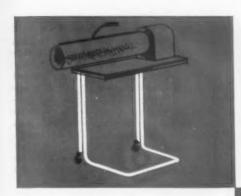
Tubing Appliance Company has appointed two eastern representatives. John T. Monaghan Company is the direct representative of the manufacturer for metropolitan New York City and New Jersey. Leo A. Heal Company, Boston, Mass., covers the New England states.



A COMPLETE TRANSPORTATION SERVICE

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JUDSON-SHELDON DIVISION - JUDSON FREIGHT FORWARDING DIVISION 19 RECTOR STREET, NEW YORK 6, N. Y. Serving 30,000 communities through more than 150 stations in the U.S. and agents in principal fereign countries.



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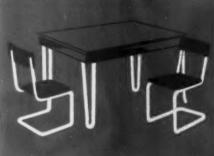
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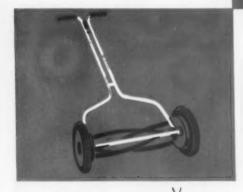
OSTUCO TUBING is versatile!



OSTUCO TUBING is versatile!



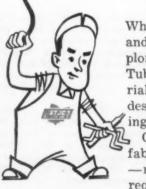
OSTUCO TUBING is versatile!



OSTUCO TUBING is versatile!



whips new ideas into shape



Whatever your ideas for creating new and better products, it will pay to explore the many advantages of Ostuco Tubing—the strong, light-weight material that whips even the most stubborn design problems into line with surprising ease.

a OSTUCO TUBING can be forged or fabricated beyond recognition as a tube — machined and finished to your exact requirements—quickly joined in assem-

blies by a large variety of mechanical or welding methods.

Modernized and greatly expanded facilities for manufacturing, shaping, and fabricating tubing, all at one plant—plus our own steel source as a member of the Copperweld family—enable OSTUCO to speed deliveries, assure uniform high quality, and cut your final costs. Write for informative booklet "Fabricating and Forging Steel Tubing."



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WRITE TODAY for catalogs and current prices.



Several personnel changes, all of them promotions within the ranks, were announced recently by Erie Resistor Corporation, Erie, Pa.

J. C. Van Arsdall has been named assistant general manager of the Electronics Division. William Klevens, former field sales engineer in Indiana and southern Ohio, succeeds Mr. Van Arsdall as manager of sales engineering in the division. William J. Wervey moves from his present post of sales engineer in electronics to take over the position vacated by Mr. Klevans.

Malcolm Young, formerly manager of quality control, has been appointed assistant general manager of the Plastics Division. Ralph Hathaway moves up from superintendent to works manager of the Electronics Division, while Philip B. Ehrmen has been promoted from assistant superintendent to superintendent of the division

Horace S. Herrick, who has served as division manager of quality control, takes over the post of manager of quality control for the Electronics division.

Albert L. Smith, vice president of Continental Copper & Steel Industries, Inc., New York City, has been named general manager of the new Walsh





A. L. Smith J. B. Knowlton

Portland Division, South Portland, Me., which was recently formed to fabricate steel pipe and equipment under a multi-million-dollar Atomic Energy Commission contract. Mr. Smith has been general manager of the corporation's Walsh Holyoke Boiler Works Division.

In announcing Mr. Smith's appointment, it was also stated that John B. Knowlton, former assistant engineer at the Walsh Holyoke Boiler Works, has been made a vice president of the corporation and will succeed Mr. Smith as general manager there.

The Schaible Company, Cincinnati, has announced that they have established two Western regional sales offices and completed arrangements for warehousing facilities on the West Coast.

Robert B. Davison has been named Western regional sales manager and will headquarter at the company's new office in Los Angeles. The second new sales office is located in San Francisco.

Donald Reiman has been appointed southern representative for the Rhode Island Insulated Wire Co., Inc.

You Don't Have To Be A Sleuth





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Vapor-from-paper stops rust

of pump parts headed for Palmira

Site of world's steepest and highest oil pipe line where B-J pumps now have been installed.

Saves greasing—saves degreasing!

The white paper you see there gives off a vapor that stops rust.

It's clean and so EASY to use that Byron Jackson Co, now protects this part for big oil line pumps in 14 min-utes. It took 50 minutes with messy pre-servatives! And you can see that no bulky equipment is needed that would hog floor space.

But how good is vapor at stopping rust? Well, recently some B-J pumps were sent to Palmira, Ecuador, near the equator. Even with salt air and high humidity, they arrived bright and clean!

This was no surprise to the maker. He and the sused Angier's vapor rust preventive since '49. That four years' experience with our VPI* Wrap reveals impressive savings. Savings in time and materials that VPI users in every branch of metalworking already know about.

For facts on how VPI works and what it can save YOU, mail coupon now.

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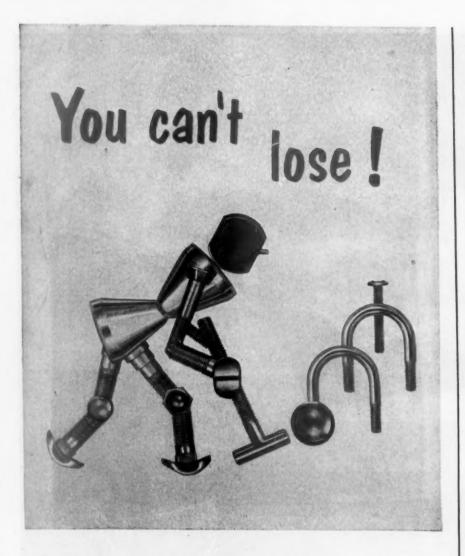
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Whether your fastener requirements call for special bolts . . . or standard . . . you can get experienced cooperation and service from Buffalo Bolt.

In using Circle ® specials . . . you can often simplify product design . . . gain extra holding strength . . . speed assembly . . . and cut your unit costs.

In specifying Circle ® standard bolts . . . you get quality built in by modern methods and machines designed to meet your volume demands.

In both cases, you can depend upon the experienced counsel of a concern which is satisfactorily supplying leading industrials known for their purchasing and production efficiency.

Let us discuss and demonstrate to you the many practical advantages of dealing with Buffalo Bolt. Your inquiry will receive our prompt attention.



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Sales Offices in Principal Cities

PRODUCERS OF CIRCLE (B) PRODUCTS - BOLTS . NUTS . RIVETS AND SPECIAL PASTENERS

James M. Scriven, assistant secretary of the McBee Company, Athens, Ohio, has been appointed to the newly created post of assistant general manager of the Binder Division. Mr. Scriven's new duties will cover administration, sales and production.

C. A. Norgren Co., pneumatics products manufacturer in Englewood, Colorado, has named James A. Moody as district sales representative for the Philadelphia area. His sales territory consists of 21 counties in the southeastern corner of Pennsylvania, the southern half of New Jersey and all of Delaware.

C. John Phillips is the new vice president and assistant general sales manager of the Indiana Glass Company, Dunkirk, Ind.



C. J. Phillips

Mr. Phillips had formerly been vice president of Dunbar Glass Co. in W. Va.

John D. Tebben has been elected president and chairman of the board of the recently organized Wagner Brothers Equipment Co., Wayne, Mich.

Gustin-Bacon Manufacturing Company, Kansas City, Mo., has appointed W. F. Teague sales manager of the Industrial Product Division. He will direct sales of the company's Rolagrip and Gruvagrip pipe couplings for the entire United States.

Chicago Nipple Manufacturing Company, Chicago, has appointed David J. Gent general manager of sales. Immediately prior to his appointment Mr. Gent was assistant manager of sales for tubular products of Jones & Laughlin Steel Corporation.

Texas Vitrified Pipe Company, Mineral Wells, Texas, has announced the appointment of Morris G. Law as special representative in the territory from Corpus Christi, Texas, to Lake Charles, La. He formerly was associated with San Antonio Machine and Supply Company.



NATIONAL FORGE ELECTRIC STEEL

... is used exclusively in all of our forgings. This is to your distinct advantage when you have your forgings National-forged.

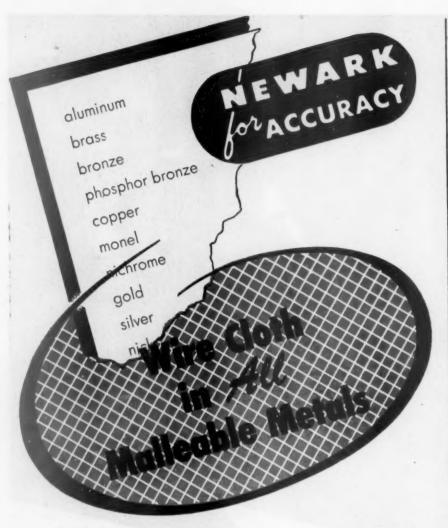
Electric Steel can be held to close chemical analysis; it is cleaner; it has lower sulphur and phosphorous content and is more uniform from heat to heat.

These qualities of our steel have enabled us to pro-

duce forgings for the armed forces that consistently meet their most exacting specifications.

Your forgings will receive the same meticulous care throughout. So why not have them National-forged next time? We offer our facilities and experience for your service; just write NATIONAL FORGE AND ORDNANCE CO., Irvine, Warren County, Penna.





Newark Wire Cloth is made of all malleable metals such as aluminum, brass, bronze, phosphor bronze, copper, monel, Nichrome, nickel and stainless steel; as well as the noble metals such as gold, silver, platinum, etc.

This wide range of metals enables you to select the one wire cloth to meet your conditions of corrosion and/or contamination.

In all metals, Newark Wire Cloth is accurately woven in a wide range of meshes, ranging from very coarse (4 inch space cloth), to extremely fine (up to 400 mesh). Our reputation for 'Accuracy' through more than 75 years is your guarantee of wire cloth quality.

We maintain a large stock of popular sizes in the more commonly used metals and can make prompt shipment. Let us quote on your requirements.



351 VERONA AVENUE . NEWARK 4, NEW JERSEY

Solar Steel Corporation, Cleveland, has appointed Hugh H. Trumbull dis-trict sales manager for the New England states. Mr. Trumbull formerly was associated with Timken Steel and Tube, Union Hardware Company, Sharon Steel Corporation and the United Steel Products, Inc.

Shaw Insulator Company, Irvington, N. J., has appointed Prescott F. Huidekoper sales manager of the firm. Mr. Huidekoper had recently served with Shaw Insulator as sales representative in New England, and prior to that was a sales representative with Plaskon Division, Libbey-Owens-Ford.

S. C. Johnson & Son, Inc., Racine, Wis., has announced the appointment of John C. Tarvin as field sales manager (industrial products) and Raymond F. Farley to the post of western regional supervisor (industrial products).

Selas Corporation of America, Philadelphia, has announced the appoint-ment of Richard S. Van Note as manager of its Chicago office. Mr. Van Note has been associated with Davison Chemical Company and the C. M. Kemp Manufacturing Company before joining Selas in 1949.

Bryant Machinery & Engineering Company has moved its general offices to 640 West Washington Boulevard, Chicago 6, Illinois.

All-State Welding Alloys Co., Inc., White Plains, N. Y., has appointed Kenneth V. Lutz as general field man-

Kornylak Engineering Corporation, Jersey City, N. J. had been appointed sales agent for the aluminum bulk material handling products of the Tote System, Inc., Beatrice, Nebraska.

Paul H. Nast has been appointed manager of the rock drill division. Davey Compressor Co., Kent, Ohio.

Mr. Nast had previously been with the Worthington Corp.

Spray Wash Cleaner Prevents Rusting Of Ferrous Parts

A spray wash cleaner, that does not etch or discolor aluminum, cuts barrel tumbling times in half or reduces concentrations of cleaner similarly, according to the Van Straaten Chemical Co., 546 Washington Blvd., Chicago, is twice as effective as existing compounds. The cleaner is not toxic or inflammable, cleans thoroughly and quickly and prevents rusting of ferrous parts. The company states that the product keeps the parts and abra-

(Please turn to page 300)

Lower production costs with YALE ELECTRIC TRUCKS

... and the YALE attachments designed for your industry

Crate clamp attachment also available with sideshifter.



Pusher attachment for automatic positioning of loads.



Paper roll clamp attachment rotates through a full 360°.



The rugged structure of every YALE Electric Truck is designed to house the most efficient power plant available...to insure more than ample capacity for your particular lifting, moving and stacking jobs. The trouble-free YALE hydraulic system provides sure, steady power for safer, smoother lifting and lowering. Yet, with all these advantages...with power and stamina to spare...YALE Electric Trucks are economical to own, operate and maintain... amazingly versatile for every materials handling problem.



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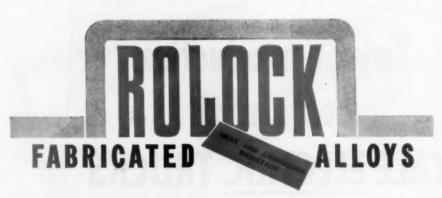
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 - ☐ Please send me the Picture Story of Yale Materials Handling Equipment
 - ☐ Please have local YALE Representative call

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Name_____Title____

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Gas, Electric, Diesel & LP-Gas Industrial Trucks • Worksavers • Hand Trucks • Hand & Electric Hoists • Pul-Lifts



GREATER PRODUCTION thru an AUTOMATIC PICKLE-WASH CYCLE



for Valve Stems at

A. SCHRADER'S SON



Shown in the two photographs are start-to-finish steps of an automatic oval travel cycle for bright dips and washes of Schrader brass valve stems. The baskets (9" x 9" x 9") were made by Rolock from 18-8 stainless steel to carry 75-lb. loads. This system replaced hand pickling and has greatly increased production, lowered hour costs considerably.

Basket No. 1 is hopper loaded . . . Nos. 2, 3, 4, 5 show progressive positions thru tanks. At No. 6, bottom latch of basket has been automatically tripped, releasing load thru a chute to carrier . . . and at No. 7, bottom is closed by an air gun and is ready for reloading. Some baskets have been in use for 9 years. This is a typical example of Rolock cost-reducing equipment for handling metal parts thru finishing operations . . . either heat or corrosion resistant baskets, crates, trays, retorts, muffles, tanks, sinks, etc.

See Rolock at Booth 2011, METAL SHOW October 19-23, Cleveland, Ohio

SEND FOR CATALOGS B-8 (Heat Treating) or B-9 (Corrosion Resistant).

 $Offices\ in: PHILADELPHIA \circ CLEVELAND \circ \textbf{DETROIT} \bullet \textbf{HOUSTON} \bullet \textbf{CHICAGO} \bullet \textbf{ST. LOUIS} \bullet \textbf{LOS ANGELES} \bullet \textbf{MINNEAPOLIS} \bullet \textbf{PITTSBURGH}$

ROLOCK INC. . 1272 KINGS HIGHWAY, FAIRFIELD, CONN.

JOB-ENGINEERED for better work
Easier Operation, Lower Cost

(Continued from page 298)

101

sive medium clean so that cutting can occur and that the lubrication action controls cutting action for better finishes. Pitting and corrosion on parts are prevented even when acid is present.

Offer Complete Data on Piping And Pressure Vessels

People interested in problems dealing with piping and pressure vessels will find a wealth of informative data in a new publication issued by Taylor Forge & Pipe Works, Chicago 90, Ill.

The 48-page book presents information on the company's wide scope of facilities, services and products. Brief descriptions of recent technical publications and new standards are included. A third section contains a digest of recent boiler code and pressure piping code actions pertaining to allowable stresses. The new stress tables are reproduced and the basis on which they were prepared is outlined.

Copies of Taylor Forge, Volume One, Number One, are available direct from the company.

Felt Standard Sample File Announced

The Felt Association has announced the filing of standard samples by manufacturing members. This exposition will be open to the public at all times at the Association's offices, 74 Trinity Place, New York 6. These samples cover the specifications of The Felt Association, the U. S. Dept. of Commerce CS 185-53, the Society of Automotive Engineers, the American Society of Testing Materials, the American Society of Mechanical Engineers and the military specifications of the Army, Navy and Air Corps.

In the mechanical roll felt classification the five standard densities are set up so as to reveal the differences in physical and chemical characteristics. They include the trade designations known as: Laundry, Backcheck, Ball-bearing, Firm Pad and Extra Firm Pad, Lining, Soft Pad. The samples mounted on cards measure 5" x 91/8", a technical size, making it convenient to check the weight on a gram scale for direct conversion to ounces per square yard.

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now, Standard Oil products in uniformly colored



• Here is Standard Oil's answer to the need of modern industry for better-looking, easier-to-identify suppliers' packages—packages that will help you increase the efficiency and economy of your plant housekeeping.

Illustrated above is the new uniform color scheme that Standard Oil has adopted for its drum packages. With few exceptions, such as containers for certain inflammables, all drums are of one identical color. A new and improved type of stenciling on drum heads makes product identification simpler and easier.

You'll welcome these uniformly colored packages into your

plant. They will help you obtain better plant appearance. The unique color indicates quickly the general contents of the packages, simplifies both storage and application of products. The uniform color expedites identification of the supplier and facilitates the return of empty drums.

Find how you can benefit through Standard Oil's unique service-supply set-up. It's unrivalled in the Midwest. The Standard Oil lubrication specialist serving your section of the Midwest is immediately available to you. Phone your local Standard Oil office. pany, 910 S. Michigan Or, write: Standard Oil Company, 910 S. Michigan Ave., Chicago 80, Illinois.

STANDARD OIL COMPANY



(Indiana)





For the address of the Pittsburgh supplier nearest you, write: PITTSBURGH PLATE GLASS COMPANY, Brush Division, Dept. M, 3221 Frederick Ave., Baltimore 29, Maryland.

PITTSBURGH



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Du Pont Tax Bill Higher Than Wage and Salary Total

The Federal income tax bill of the Du Pont Company ran so high that it topped the total of wages and salaries paid the company's employees during the first half of this year. Taxes out-paced the increase in number of employees and rates of pay, both of which were at record-high levels.

To cover its estimated Federal taxes on income and renegotiation, the company set aside approximately \$233,000,000 for the first half of the year. Wages and salaries paid employees in the same period came to about \$226,000,000. If state, local, social security and other taxes had been included, they would have added about \$16,000,000 more to the tax bill.

In recent years, total annual taxes have been approaching total annual payroll but now have gone above it through a combination of circumstances:

1. The quantity of products made and sold during the first half of 1953 was substantially higher than during previous periods, as a result of larger investment in plants and equipment and resulting greater employment. Sales amounted to \$894,000,000, an increase of 18 per cent over the \$759,000,000 reported for the same period of 1952. The gain was due to a higher physical volume as the company's sales price index was slightly lower.

2. Earnings from Du Pont's new plants and processes, which accounted for much of the increased production and which provided many of the new jobs, are subject to the excess profits tax, which calls for rates as high as 82 per cent. As a result, the amount set aside for taxes was greater for the first half of the year 1953 than for any full year in the company's history prior to 1951.

Carts With Canvas Baskets Have Many Materials Handling Uses

A study in American improvisation is reported by the Parker Sweeper Co., 55 Bechtle Ave., Springfield 99, Ohio. The company designed its Fold-A-Way cart for use as a lawn-care aid in conjunction with the lawn sweepers manufactured by the company. Manufacturing concerns in ever increasing numbers are purchasing the cart

(Please turn to page 304)

NOBODY GUESSES

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When you see this fillet of alloy, and the fitting is Walseal you know that you have full penetration because the alloy comes from the inside.

Cutaway view of a Walseal Tee showing: 1 — factory-inserted ring of silver brazing alloy; 2 — fillet of silver brazing alloy that appears upon completion of Walseal joint; 3 — cutaway view of the completed joint showing that silver brazing alloy has flowed in **both** directions from the factory inserted ring.

When you join brass, copper, or copper-nickel pipelines with Walseal Valves, Fittings, or Flanges you know you have the *right amount* of the *correct type* of silver brazing alloy. The ring of Sil-Fos brazing alloy is *factory-inserted* in the ports of Walseal products at the time of manufacture.

No lost time or motion in handling the alloy . . . no difficulty in getting full penetration of the alloy regardless of the position of the valve or fitting . . . no guessing whether the joint is made right . . . the fillet of silver brazing alloy that shows up when the Walseal joint is completed, comes from the inside! And, whether you've made the joint yourself, or are inspecting the work of another, you know that if the silver alloy fillet is visible, and the valve or fitting is Walseal, you have full penetration. That's why nobody guesses when you use Walseal!

Walseal products are backed by the reputation of the Walworth Company, manufacturers of valves and pipe fittings since 1842.

For full information regarding silver brazed joints made with Walseal products, write for Circular 115.



Make it "a one-piece pipeline" with WALSEAL

WALWORTH

valves and fittings 60 EAST 42nd STREET, NEW YORK 17, N. Y.

Recommended for

Hot and Cold Water Circulating Systems

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Low and High Pressure Air Systems

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Solvent and Vacuum
Piping Systems

VINCO helped take the "guess" out of involute spline manufacturing and gaging for INTERNATIONAL HARVESTER

Mr. Leon N. DeVos Vinco Corporation 9111 Schaefer Highway Detroit 28, Michigan

Dear Mr. DeVos:

Since early 1950 you and other members of the Vinco Corporation have been working closely with representatives of our Company in solving the many complex problems involved in the design, manufacture, and inspection of involute splines. During that time you and your associates have been extremely helpful to us in taking the "guess" out of involute spline manufacturing and gaging.

Because such conferences with you have been so productive, meetings of this kind are now a "must" in our farm tractor manufacturing operations. Subsequent discussions have been most helpful in establishing designs and gages for our transmission shafts and gears.

We wish to take this opportunity to thank the Vinco Corporation for the fine cooperation it has extended to our Company. This is just another example of how companies such as International Harvester and its suppliers can, by working together, produce better products for a better America.

Sincerely.

Eric A. Wolfram

VINCO CAN DO THE SAME FOR YOU

So if your next production program involves splines, call in a Vinco field engineer. He will save you both time and money.

VINCO CORPORATION 9119 Schaefer Hwy., Detroit 28, Mich.



VINCO, the country's largest spline gage manufacturer, produces all types of involute, serration and straight sided spline plug and ring gages.

MILLIONTHS OF AN INCH FOR SALE

THE TRADEMARK OF DEPENDABILITY

(Continued from page 302)

and putting it to use in materials handling. This is because the cart is of light-weight, yet sturdy, construction and because of its maneuverability and ease of handling. Extra-strong canvas duck baskets, easy to remove from the frame, fold up like a traveling case for easy carrying and are durable as well. The cart comes even in 15 bushel size.

Plastic Pipe And Tubing Made In Variety Of Sizes, Fittings

Polyvinyl chloride plastic pipe and tubing is being offered by Alpha Plastics, Inc., 14 Northfield Rd., West Orange, N. J., in a wide range of sizes and a full range of fittings. The new



pipe made of "Alpha Forty"—a special compound of vinyl chloride polymer, is processed without the aid of plasticizers or co-polymers, making it distinctly different from the so-called "hard vinyls." It is inert to the most commonly encountered chemical corrosives and exhibits a high degree of resistance to most inorganic chemicals and organic materials. Certain types of organic solvents such as ketones, ethers, etc. produce a swelling action

Rate-of-Rise Thermostat Aids Fast Warm-up System Control

The rate of heating can be controlled in fast warm-up systems and hazardous temperature overshoots prevented by a rate-of-rise thermostat developed by Fenwal Inc., , Ashland, Mass. When used in any type of heated system, it controls the rate of heat output during the warm-up period and is adjustable to control any heating rate between 10 F and 100 F per min. When the heating rate exceeds the preset limit, the switch contacts inside the unit open and interrupt the heating cycle temporarily. After the heating rate falls to a safe level, the heating cycle resumes. The unit can be used in ambient temperatures between -100 F and 550 F.

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FIRE-KILLING CAPACITY . . .
HIGH-SPEED OPERATION and
EASIER MANEUVERABILITY . . .

Ansul "B" Model Wheeled Extinguishers are completely new. Dozens of design changes have improved their operating characteristics as well as their appearance. They provide faster, easier extinguishment of fires almost twice as large as those handled by our "A" model wheeled extinguishers. New Ansul Wheeled Extinguishers are easier to move to

the fire. They can be actuated faster. They'll put out more fire faster. They're easier to recharge and maintain. And they will give even more years of trouble-free service.



MODEL 350-B



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For a demonstration call your Ansul representative today. Or for additional information send for file number W-51.



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MANUFACTURERS OF DRY CHEMICAL FIRE EXTINGUISHING EQUIPMENT, REFRIGERATION PRODUCTS, INDUSTRIAL AND FINE CHEMICALS AND LIQUEFIED GASES



Crosley's "Shelvador" refrigerator line, twice awarded the Fashion Academy Gold Medal for advanced styling, adds to its laurels with this beautiful "Twin Automatic." A medal for smart production engineering might well be awarded too, for Crosley incorporates the use of efficiently designed Riverside electrical components that can be installed quickly, easily, and inexpensively!

We deliver these sub-assemblies completely fabricated, ready for installation. Thus, along with assembly savings, Crosley avoids upkeep of the specialized facilities required to produce such electrical

components, a considerable saving in itself.

The design and production of wiring assemblies is a highly specialized business . . . and a Riverside specialty! Our Engineering Department is devoted solely to solving wiring problems . . . while specialized production equipment and skilled personnel translate its recommendations into efficient, economical "packaged wiring." It will pay you to send prints or details of your product wiring problem for design suggestions and a firm quotation. There is no obligation.

> Attending the Refrigeration and Air Conditioning Exposition? Watch our rubber molding equipment turn out souvenirs while you wait .. see what we're making for appliance manufacturers . . talk over your product wiring problems. Writeit down now-Booth No. 8421



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WIRING HARNESSES AND ASSEMBLIES . CORD SETS . HEATER AND EXTENSION CORDS . ELECTRICAL SWITCHES . RELAYS . MOLDED RUBBER PRODUCTS

Specification For Fuses Now Available From A. S. A.

A 49-page specification for fuses has just been published by the International Electrotechnical Commission. The specification is for fuses for voltages not exceeding 1000 volts for alternating and direct currents.

The Commission has also named in the booklet: requirements relating to breaking-capacity, timecurrent zone, cut-off characteristic, temperature-rise, insulating characteristics, watts loss in fuse-links and protection against contact with live parts. Tests which must be met to insure the compliance of fuses with the requirements, together with the methods for making tests are also specified.

The publication contains internationally-agreed-upon definitions pertaining to fuses, and a special section of markings on fuse-links, fuse-bases and fuse-carriers.

The I.E.C. Specification for Fuses For Voltages Not Exceeding 1000 Volts for A.C. and D.C. may be obtained from the American Standards Association, 70 E. 45 St., New York 17, N. Y. at \$1.75 per copy.

Technical News Letter Reports On Improved Shell Molding

A report on improved techniques in shell molding and a new process of manufacturing intricate foundry molds and cores are among the technical papers reviewed in the August issue of the Technical Reports Newsletter, just released by the Office of Technical Services, U. S. Department of Commerce.

Also of interest is a report of research by the Department of Metallurgical Engineering of Rensselaer Polytechnic Institute on the importance of upset variables in flash welding aluminum alloys.

Brief items on tool conservation, salvaging faulty castings, improvements in instrumentation, and the frequency-spectrum analysis of d.c. generators are included in this issue of the Newsletter.

Single copies of the April 1953 Technical Reports Newsletter are available without charge from the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C., or from the Department of Commerce field offices. Annual subscriptions are \$.50. Make checks payable to the Treasurer of the United States.



This check list shows you how to get the most for your money in terms of resistor performance



"O.K. But what's your price for performance?"

Here's a purchasing agent buying resistors on a price basis. But doing it the right way.

Some day we may even be able to quote resistor prices in terms of performance - so many cents per thousand hours of troublefree operation. Then we'll be able to tell you exactly how much less Ward Leonard resistors really cost than the so-called "bargain" resistors now on the market.

But until then, remember, it's performance you pay for when you're buying resistors. There's a lot more than just a few cents difference in the performance you'll get from

the two resistors above.

The one made by Ward Leonard will perform at its rated value for the life of the product it goes into. There's a chance the pseudo "bargain" resistor will, too. But you can't afford to take any chances on your product's failure - even once out of a hundred times. Not when you consider the actual cost of such failure, figured in terms of returned merchandise, replacement costs, and customer and dealer dissatisfaction.

That's why, even on a price basis, the accuracy, dependability and uniformity of Ward Leonard resistors make them better buys than any "bargains" you'll find on the market. Send for new 64-page Resistor Catalog No. 15. Ward Leonard Electric Co., 50 South Street, Mount Vernon, New York. 3.22

RESISTOR CORE. Ward Leonard's own manufactured cores upon which the resistance elements are wound consist of a perfectly cylindrical ceramic body of high density, low porosity, and high dielectric strength, with a thermal coefficient of expansion

correlated to other components.

TERMINALS. In Ward Leonard resistors, special alloy terminals to insure proper expansion and adherence to the enamel are designed to provide strong anchorage. Every wire-to-terminal junction is joined mechanically first, then specially silverbrazed for lasting contact.

RESISTANCE WIRE. The resistance wire is drawn to Ward Leonard's own specifications for each particular resistor type. It will withstand heavy overloads, has a uniformly low coefficient of resistivity. Many "bargain" resistors are wound with ordinary grade resistance wire.

COATING. Vitrohm enamel coating of all Ward Leonard resistors provides a complete hermetic seal highly resistant to shock, high humidity, extreme temperatures, acids, alkalies, and electrolysis. Unlike most resistor manufacturers, we manufacture our own vitreous enamel.



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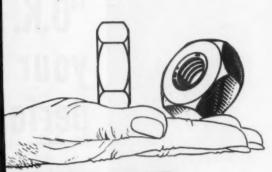
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Atlas brings you the highest standards of accuracy and quality. To save time and motion Atlas nuts are DOU-BLE COUNTER SUNK (can be applied either side), DOUBLE CHAMFERED and FREE OF BURRS. Coarse and fine threads. Standards and specials. Atlas nuts are manufactured, finished, inspected, and packed in our plant in Waterbury, Conn.

ATLAS SCREW & SPECIALTY CO.

450 BROOME STREET . NEW YORK 13, N. Y.

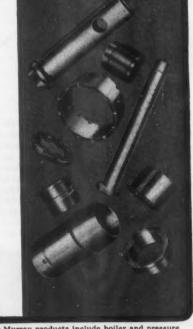
TUBING . . . FROM STOCK

Murray warehouse stocks of colddrawn and hot-finished mechanical tubing — in carbon and stainless steels — contain a complete range of sizes and wall thicknesses for prompt delivery. Hundreds of tube users repeatedly rely on Murray for dependable tubing service — in quantities to meet their production schedules

When in need of mechanical tubing $-\frac{1}{8}$ - to 12-inch O.D. from stock – call a Murray warehouse first and be sure of quick and dependable tubing service

WRITE FOR CURRENT STOCK BULLETIN





Other Murray products include boiler and pressure tubes, stainless steel pipe and fittings, IPS pressure tubing, seamless and welded pipe, JIC hydraulic tubing, carbon steel welding fittings and all types of tube fabricating to order

Threadwell Offers Tap Selector In Slide Chart Form

A new tap selector issued by Threadwell Tap & Die Company, Greenfield, Mass., brings basic tap information to the user's fingertips. It simplifies selection and specification of the correct drill and lubricant as well as the proper tap for each job.

Information for both fractional and machine screw size taps includes recommended drill size with decimal equivalent; recommendations for various classes of fit; major pitch and root diameters; and tap limits for various grinds.

Additional data includes recommendation of lubricants for tapping a wide variety of materials, explanation of the various classes of fit and grinds, and a set of charts clearly illustrating the difference in tolerance between tap limits and product limits.

Mold 3,400 Gallon Truck Tank of Reinforced Plastic

An entirely new concept in commercial tank trucking was revealed recently with the completion of a 3,400 gallon tank made of Laminac Polyester Resin and fibrous glass reinforcement for P. B. Mutrie Motor Transportation Inc., Waltham,

American Cyanamid Company, developers of Laminac, and the Carl N. Beetle Plastics Corporation, who molded the tank, state that it is one of the largest one-piece molded structures ever made; measuring 21 feet, 9 inches long; 6 feet, 2 inches wide, and 4 feet, 4 inches high, unmounted.

When fully equipped and mounted on a trailer, the new tank weighs only 7,025 pounds—3,600 pounds less than a similar steel tank. In addition to its increase in payload due to less weight, the tank initially costs less due to the fact that no special lining is required as with steel tanks.

During test runs, the tank was filled with 27,430 pounds of water and was measured for strain-resistance by strain gauges and accelerometers attached to its surface. The highest bending stress obtained, under severe test conditions, showed 840 pounds per square inch. The breaking point of the material has been determined at 20,000 pounds per square inch.

SEYMOUR PHOSPHOR BRONZE

springs JUST THE IDEAL ALLOY FOR screws small gears pinions diaphragms metal hose switch parts ock washers cotter pins Dump roes contact Springs ushings welding fourdrinier screens THE "SPECIALIST" AMONG ALLOYS! The "specialty" of Seymour Phosphor Bronze - toughness, resiliency, and resistance to fatigue and corrosion - makes this wonder metal ideal for a thousand spring, electrical, and machined parts. Seymour's range of grades and tempers gives the designer a selection of qualities to fit the job. NONFERROUS Technical data are yours for the asking. Glad to ALLOYS furnish samples for tests, and our engineering de-**SINCE 1878** partment is ready to discuss your problem without obligation. SEYMOUR, CONN. THE SEYMOUR MANUFACTURING COMPANY

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Whatever your work requirement, you're sure to find the EXACT MALL TOOLS to BOOST PRODUCTION and DOWN COSTS. The extensive MALL line includes every type and size portable electric tool imaginable to meet all kinds of production and maintenance assignments. The name MALL on any tool you buy is your assurance of lasting dependability and top performance...they're built by experts for experts.

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40 Factory-Owned Service Warehouses, Coast-to-Coast, To Give You Fast, Dependable Service.

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Company	
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	MU-6

Hexagonal Nut Socket Speeds Nut Running In Mass Production

Multiple nut running in mass production applications, is speeded up by a hexagonal nut socket. It permits the nut running tool to positively engage the nut while turning. Designed for use on air or electric-powered tools, the surface drive unit can be applied at a slight angle so nuts can be run close to obstructions, eliminating in many cases the need of semi-flexible sockets. Manufactured from alloy steel, the socket is available in drive sizes of 1/2" and 5/8". The 1/2" square drive fits $\frac{1}{2}$ " to $\frac{1}{16}$ " hexagonal nuts. The $\frac{5}{8}$ " one fits hexagonal nuts of $\frac{1}{16}$ " to $\frac{11}{4}$ " in regular length and $\frac{3}{4}$ " to $\frac{11}{8}$ " in deep length. Write: Cornwall Quality Tool Co., Mogodore, Ohio.

Neoprene Rubber Product Aids Protection With Cotton Gloves

A neoprene rubber product, applied to cotton work gloves, makes them longer wearing, water-proof, grease- and oil-resistant, thus providing more complete hand protection. The material can be quickly applied either with a paint brush or can be rubbed in by wearing the gloves and then working the material into them after the glove coating product has been poured onto the palms. A pint of the coating product will give a full coat to ten pairs of gloves. The economy of using the product as against buying cotton gloves already-treated is apparent. Further details from S. C. Baer Co., 1600 Times-Star Tower, Cincinnati 2, Ohio.

Aluminum Tubing Seen As Aid To Metal Furniture Makers

1 1 1

Light metal furniture manufacturers, states the Harvey Aluminum Division, Harvey Machine Co., Inc., Los Angeles, Calif., should find their new furniture tube of distinct advantage in production problems. It is claimed it will reduce raw material costs, cut down fabrication operations and reduce the need for heavy stock inventories. The tube has extremely close ID and wallthickness tolerances, desirable surface characteristics, good formability and high corrosion and acid resistance. Inasmuch as the tubing retains its surface luster through the bending and forming operations, re-buffing of bent areas is eliminated.



RELIABLE SUPPLIER of QUALITY STEEL CASTINGS?

. . . if you are, you would do well to contract the Atlantic Steel Castings Company, for Atlantic is recognized as an outstanding producer of quality steel castings.

Whether your requirements call for small 5 pound castings or large 15,000 pound monsters, you will find that Atlantic can make them for you economically and well.

Also, Atlantic engineers will be glad to cooperate with your designers to get that correlation of teamwork that often leads to improvements in castability, lower production costs and other benefits.

The next time you require good sound and accurate castings . . . call Atlantic.

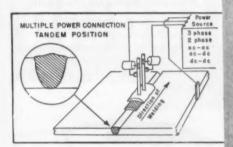


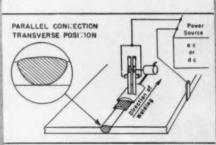
WELDING TIME IN HALF with UNIONMELT

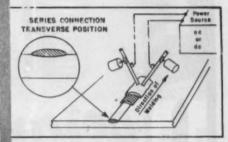
Multiple Electrode Welding

UNIONMELT Multiple Electrode welding with two or more electrodes in tandem, transverse, or other positions increases welding speeds up to three or four times faster than single electrode welding.

By using two or more electrodes in the same weld zone, magnetic reaction can be regulated to provide exceptional control over arc direction and weld shape.







Extra High-Speed Welds are made with multiple power connection and the electrodes in the tandem position. Speed is three to four times that of single electrode welding. This is particularly suited for welding long continuous seams, well-prepared and well-fitted, as in pipe, tanks, pressure vessels, and structural assemblies.

Extra Wide, High-Speed Welds are made with parallel power connection and the electrodes in the transverse position. Speed is twice as fast as for single electrode work. This is particularly useful for welding seams with gaps or other irregularities, as in center sills, ship plate, and heavy, hard-to-fit work.

Extra Shallow, Wide Welds are made with the series power connection and the electrodes in the transverse position. Speeds are many times faster than single electrode work and the dilution of the deposit is far lower than can be produced with a single electrode. This process will open new possibilities for surfacing and cladding all kinds of articles by automatic welding.

Complete Unionmelt machines are available for multiple electrode welding and all Unionmelt apparatus is designed for easy installation in any plant or factory. Linde's engineers will be glad to

determine how UNIONMELT Multiple Electrode Welding can best benefit you. Call your nearest LINDE office for more details on UNIONMELT Multiple Electrode Welding.

LINDE AIR PRODUCTS COMPANY

A Division of Union Carbide and Carbon Corporation 30 East 42nd Street New York 17, N. Y.

Offices in Other Principal Cities
In Canada: DOMINION OXYGEN COMPANY, LIMITED, Toronto



The terms "Linde" and "Unionmelt" are registered trade-marks of Union Carbide and Carbon Corporation.



Machine Dispenses Both Hot Coffee and Cold Orange Juice

An interesting new development in in-plant feeding is an automatic beverage dispenser that serves two of the nation's favorite beverages: hot coffee and cold orange juice.

The machine, presented by Minute Maid Corporation, New York, N. Y., and Rudd-Melikian, Inc., Philadelphia, Pa., measures 51" high, 22" wide, and 18" deep. Capacity of each unit is 200 cups of coffee and 150 cups of orange juice without refill. Individual cups of the beverages are electronically prepared and dispensed at the drop of a coin in the slot and the push of a button.

Circular Fluorescent Lamp Provides Non-glare Lighting

1 1 1

A new lamp, that incorporates a Circline fluorescent tube to provide an unusually even spread of non-glare light, is being introduced by Industrial Lamp Corporation, Elkhart, Ind.



Known as the ILC Catalina, it is designed for use with modern twoway or free-form desks because it does not require a front-and-center position.

It is finished in brown or gray baked enamel with polished brass trim. The lamp is approved by Underwriters' Laboratories.

New Process 'Permanizes' Sisal Fiber Cloth To Reduce Fraying

A process that will double buff life has been perfected by American Buff Co., 2414 S. La Salle St., Chicago 16, Ill. The process is used on the company's bias sisal buffs, comprising the conventional type, the permanent steel center, and the new patented "centerless" type buff. The process permanently locks together the fibers of the top grade

(Please turn to page 314)



THE NEW BRIGHT CADMIUM PROCESS!

New Udylite Bry-Cad is unequalled in brightness, throwing power, plating speed and covering!

But that's not all! Bry-Cad offers exceptional operating economy, too. It is highly resistant to both organic and metallic impurities. New Udylite Bry-Cad provides high cathode efficiency and operates over a wide current density range with little "gassing" and no spray. This materially reduces waste.

Complicated parts . . . deep recessed . . . intricate shapes . . . are all plated uniformly with new Bry-Cad. And only one liquid brightener is needed for the whole operation.

Have your Udylite Technical Man give you the complete story or write direct. THE UDYLITE CORPORATION, DETROIT 11, MICHIGAN. West of Rockies, L. H. Butcher Co., Los Angeles 23, California.

PIONEER OF A BETTER WAY IN PLATING



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(Continued from page 312) sisal fiber cloth woven to exact specifications and bias cut. This "permanizing" reduces fraying, prevents excessive hardness and gives a perfect finish on every job, eliminating many grease wheel opera-

minating many grease wheel operations. The air-conditioned buff construction provides cooler running atfaster speeds, increasing machine output.

4" Pipe Machine With Extra Range of 1/2", 3/4" Announced



The Oster Mfg. Co., 2057 East 61st Place, Cleveland 3, Ohio, is announcing a low cost 4" pipe machine, No. 784, that is a heavy duty, fabricated steel constructed floor type, with a standard range of 1" to 4" and an extra range of ½" and ¾". It is equipped with a front chuck which requires no wrench for operation and is ideal for frequent changes of pipe sizes, because a spin of the hand wheel moves the gripping jaws through the entire range in a few seconds. Rear centering chuck is quick acting and non-binding. This rear chuck, together with extra long spindle, provides maximum pipe support, prevents whipping and assures straight threads on long lengths.

Variable Speed, Light-Duty Press Brake For Metal Work

A light-duty press brake, with a variable speed drive is said to offer increased production on a variety of sheet metal work. Welded plate construction maintains the original precision alignment. A twin-plate bed provides extreme lateral rigidity, minimum deflection and a 11/4" slug clearance on multiple punching. The variable speed drive (infinitely variable between 20 to 50 strokes per minute) permits selection of the ideal speed to suit the nature of the work and skill of the operator. Machine is made in three sizes with capacities of 54" x 10 gage to 120" x 16 gage. The manufacturer is the Dreis & Krump Co., 7400 S. Loomis Blvd., Chicago 36, Ill.

air conditioning products in the industry.

WALLS OR CEILINGS

the smart buy is

"Century" APAC

asbestos-cement sheets

Here's the kind of building economy you can't afford to pass up! "Century" APAC sheets offer you the means to low-cost, trouble-free walls and ceilings on almost any type of building or structure.

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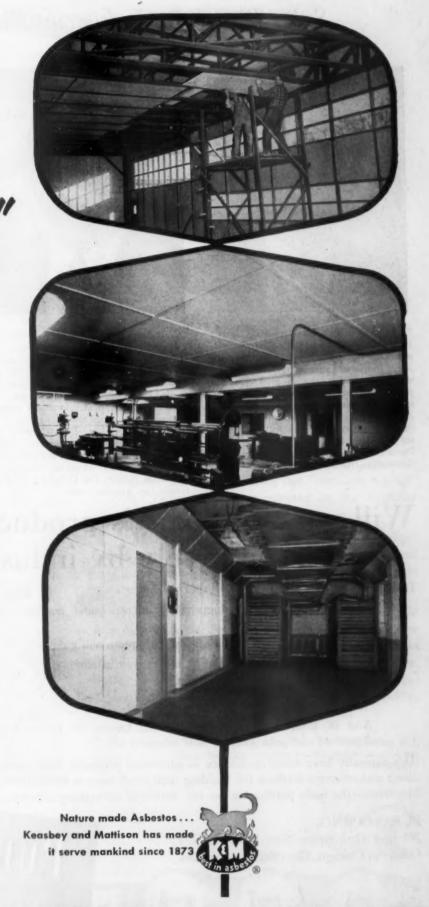
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These light, easily-handled sheets are made from portland cement and mineral asbestos. They will not burn, rot, or corrode, and they are impervious to insects and vermin. They take decorative colors well, although they never need paint for protection—indoors or out.

Rooms finished with "Century" APAC sheets are clean, attractive places in which to work. Structures sided with this versatile material have a trim, modern, efficient look. Best of all they stay that way, for "Century" APAC needs virtually no maintenance—ever!

Your K&M distributor can tell you more about this product and the other types of "Century" asbestoscement sheets. See him soon! Or write directly to us.



KEASBEY & MATTISON

COMPANY . AMBLER . PENNSYLVANIA

Sales Tips from Industrial Purchasing Agents



"I believe that most purchasing agents look upon the salesman as a distinct asset, provided he knows his line thoroughly; keeps customers abreast of new developments and market conditions affecting his product; is familiar with how his product is used by his customer; is willing and eager to give better service; gives realistic delivery information and follows up to see that dates are kept," says C. D. Hart, Purchasing Agent, Taylor Instrument Companies, Rochester, N.Y.



"Confidence acts as a leaven in building a lasting relationship between buyer and seller. Although we are generally careful to specify properly what we want and how we want it, many fine points are not spelled out in our purchase contracts. We subscribe to the principle that a written contract is no better than the integrity of the buyer and seller. This is why confidence in a seller will often win orders when selling arguments do not get to first base," says E. H. Weaver, Manager of Purchases, Union Oil Company of California, Los Angeles, Calif.



"To buy materials on the basis of function or performance, many Purchasing Agents use the new technique of Value Analysis. This often means a change in specs or a change in the nature of the material. The salesman who gives me the best service realizes this and sees to it that the articles he is selling will in every way meet functional or performance requirements," says C. Warner McVicar, Director of Purchasing and Traffic, Rockwell Manufacturing Company, Pittsburgh, Pa.

Will your company's products be considered competitively by industrial PA's?

They will . . .

IF your company's products can stand up under competitive analysis.

IF the purchase of your company's products will guarantee the buyer:

an improved end product, or a lower manufacturing cost,

or a reduced plant maintenance cost.

And IF your company's products are known to Purchasing Agents.

PA's naturally have *more* confidence in *advertised* products. Your most direct and effective medium for building such confidence is Purchasing Magazine — the basic publication on any industrial advertising schedule.

PURCHASING,

205 East 42nd Street, New York 17, N. Y. Offices in Chicago, Cleveland, Los Angeles.

When you think of selling...think of PURCHASING









The basic magazine on any industrial advertising schedule!

How to Fabricate More Profits



This is a story of small change that put folding money in the pockets of a half-dozen fabricators of metal products.

The small change is that of specifying Carpenter Stainless Tubing rather than just "stainless tubing" ... the folding money is attested by the captions under the pictures at the left.

What is more important to you, however, is the fact that none of the orders were for "specials"...all of these pieces were made from "mill run" tubing as delivered by Carpenter.

The moral of the story is, of course, that there is a difference in Stainless Tubing—and Carpenter makes it. Why not make the most of this provable difference in your own shop—for your own profit. Call your nearest Carpenter Distributor for your next order of tubing . . . plus design and engineering help if you need it. "One Call Does It All."

The Carpenter Steel Company, Alloy Tube Division, Union, N.J.

Export Dept.: The Carpenter Steel Co., Port Washington, N.Y.

"CARSTEELCO"

Carpenter

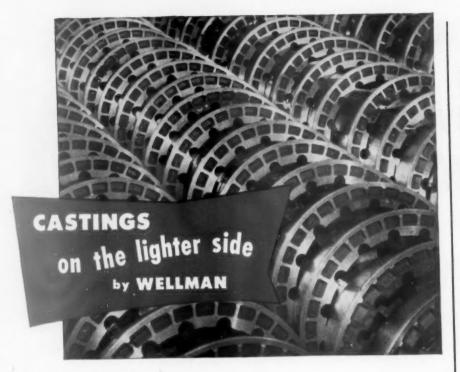
STAINLESS TUBING & PIPE







- guaranteed on every shipment





If you're thinking along the lighter side about the whole subject of magnesium and aluminum castings, think about Wellman as a source.

As the contractor, standing in one room of his new inexpensive house, said to a friend in the next room, "You can hear me, but you can't see me? Them's some walls, ain't they!"...

"Them's some walls" on a Wellman lightweight magnesium casting, too, thin in appearance but tough enough for our biggest jet bomber landing wheels . . . and easy to machine!

Let us show you how our four complete plants and almost a half century of experience can help you. Write for our new catalog No. 53.

Well-Cast magnesium and aluminum castings
Well-Made wood and metal patterns



THE WELLMAN BRONZE & ALUMINUM CO.

Dept. 17, 12800 Shaker Boulevard Cleveland 20, Ohio

C.C. Says End Of Controls Brings Building Boom

There's a new building boom underway, says the Chamber of Commerce of the United States, and claims one big reason is the new freedom from government controls.

Money spent on new construction in 1953 will exceed any year on record, thus continuing to an unexpected peak the spectacular rise since the end of World War II. The total—\$34.6 billion.

Two thirds of this total, or \$23 billion, will be spent for private construction; the remaining third, or \$11.6 billion, on public construction. Both figures represent new highs.

A Free Market

Behind this upsurge, the Chamber says, is the old story of a free market. A year ago, construction was tightly controlled. Materials were allocated and their prices set by government. Private building was closely restricted. Wages (in theory) were controlled. So were credit and rent.

However, the incoming Administration proceeds to dismantle the controls program. Except for rent, the market was virtually free by the time spring building got well underway. Federal rent controls lingered until the end of July, then were ended in all but a few critical defense areas.

With this new elbow room, and the assurance of Congress that controls would not arbitrarily be reimposed, builders surged ahead to set the new records.

Set of Weld Standards Available From Lincoln Electric

To enable the machinery manufacturers and fabricators to acquire both cost and quality control over welding operations, The Lincoln Electric Company of Cleveland, Ohio, has created and is making available a set of World Standards. The Standards are available on tracing paper so that they can be blue-printed or otherwise reproduced for the purpose of giving engineers and production personnel a standard for communicating welding procedure on drawings. The Weld Standards are based on procedures developed by Lincoln and the weld symbols of the American Welding Society.

Complete sets of 19 sheets on tracing paper in a loose-leaf binder are available from The Lincoln Electric Company, Cleveland 17, Ohio, for \$1.00 per set, postage prepaid in U. S. A.; \$1.50 elsewhere.

Commercially Practical Method Found for Refining Zirconium

Zirconium, a metal which long has been extremely difficult to refine, soon will be available for use in chemical equipment as well as in atomic energy installations. A commercially practical

(Please turn to page 320)

One demonstration, and key men agree

NEW Scott Industrial Wipers



are better than anything they've ever used for most industrial wiping jobs.

We expected that years of testing and research had made this a good product. Still, we never thought that Scott Industrial Wipers would catch on so quickly with so many key men in so many different kinds of plants.

Scott Industrial Wipers have only been on the market a few months. But, already, Plant Managers and Superintendents, Industrial and Methods Engineers, Production Supervisors, Head Storekeepers, Purchasing Agents —as well as the workers themselves—have been enthusiastic about them. Here's why:

Safety

Scott Wipers are disposable. This means that harmful filings, oils, and shavings are thrown away, along with the used wipers. Clean edges reduce chances of catching in moving machinery.

Cleanliness

Because a new clean one is always available, you can have a wiper free from chips and foreign matter thus helping eliminate the carrying of dermatitis.

Uniformity

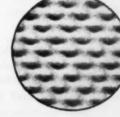
Each wiper is of standard size, color and absorbency. Every inch is a highly effective wiping surface. From experience you will soon know the exact wiping requirements of each job.

Versatility

Soft but strong, Scott Industrial Wipers tackle almost any job . . . from oil wiping and glass wiping to polishing and use on the face and hands.

Cost control

Naturally, with sorting and counting eliminated, expensive controls are no longer necessary. Wiping now can be a budgeted production operation.



Close-up of wiper surface showing "PERF-EMBOSSED" texture which grips dirt and assures thorough cleaning

Most plants have found a 90-day trial—with a Scott representative working hand in hand with their supervisory personnel—the most accurate way of measuring the advantages of Scott Industrial Wipers.

	cott Paper Company, Chester, Pa.	
Name.		
Positio	n	

For further information fill out the counon and

Company_____

City____State____

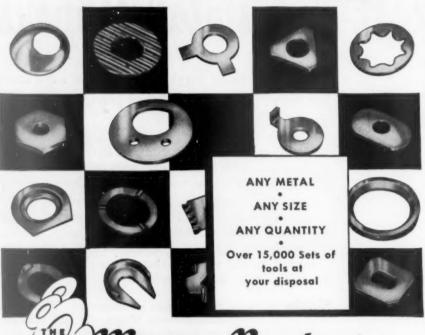
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IT'S A SMART MOVE TO ORDER

Special Washers





MALLEABLE IRON CASTINGS

6400 PARK AVENUE . Diamond 1-1740 . CLEVELAND 5, OHIO

that you can depend upon!

The right connection—for the malleable iron parts you need-can be a source of satisfaction to you.

Many, many leading makers of durable goods use Moline Iron Works Malleable Iron Castings to uphold the quality of their products.

Good service, quality control and reasonable prices are three reasons why your connection with Moline Iron Works can be both a pleasant and profitable one. We invite your specifications for quotation.

WE SHIP QUICK! Phone 4-5676 for Service

The parts shown here are representative of our production for automotive, farm implement, appliance and railroad customers.

MOLINE IRON WORKS

Moline, Illinois, U. S. A.



(Continued from page 318) method for refining it has been developed only recently.

This became known recently with the announcement from the Pfaudler Co., Rochester, N. Y. that it had manufactured and shipped processing equipment for the large new zirconium plant being built at Akron, N. Y., by Carborundum Metals Co., Inc., a sub-sidiary of Carborundum Co., Niagara Falls, N. Y.

Zirconium, which passes neutrons and possesses unusual corrosion resistance is used as a construction material for atomic energy reactors. Soon it will be available as well, for chemical equipment, pipes, valves, tubes, and pump liners. Hafnium, a very rare metal and a by-product of the zirconium process, has enormous absorption capacity for thermal neutrons and is used as control rod material in atomic reactors.

A Pfaudler spokesman described the major equipment supplied Carborundum as "glassed-steel reactors and heat exchangers, among other things."

Glassed-steel is essential in many temperature, high pressure chemical processes. It assures product purity, corrosion resistance, lack of product adhesion, and absence of catalytic effect.

While zirconium is the 14th most prevalent material in the earth's crust. being more common, for example, than copper, it is extremely difficult to isolate. The metal sells today at \$28 to \$32 per pound, in the form of sheets, rods, tubes, etc.

State Tax Burden Reaches \$68 Per Person; Up \$4 Over 1952

The annual state tax burden soared to a new high, averaging \$68 per capita for the fiscal year 1953, Commerce Clearing House, national reporting authority on tax and business law, has announced.

A compilation in CCH's State Tax Review shows this to be an average of \$4 more per person than in 1952. The 48 states collected approximately 101/2 billion dollars, an increase of \$700 million over last year.

A map prepared by CCH from U. S. Census Bureau preliminary figures shows in graphic form the per capita tax burden by states. Washington is shown to have the highest average for the year. Its collections were \$108 a person, up 6.6% for the year.

The CCH figures are based on state imposed taxes, some of which may be later distributed in whole or in part to local governments. Taxes collected

locally are not included.

Although the majority of the states continued the steadily rising trend of tax increases, CCH reported some evidence indicating that the peak may be near. Seven states reported decreases and nine showed only slight increases, less than 3%.

Utah reported the greatest decrease, (Please turn to page 322)

"CASE" HISTORIES FROM ATLAS PLYWOOD'S SHIPPING CONTAINER CLINIC (Safe-Transit Certified)

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A single Atlas Plywood case does the job of two cases previously used . . . greatly increases protection . . . cuts shipping weight 20%

THIS CASE WASTED MONEY

This beverage cooler* used to be shipped in two heavy wooden cases — shown here with fronts removed to reveal makeshift blocking methods. Sample was received at Atlas Plywood "Shipping Container Clinic" with foot-long hole in crate bottom. Total gross shipping weight. 1,010 lbs.

THIS CASE SAVED MONEY

In Atlas Plywood's "Shipping Container Clinic", engineers designed a single cleated plywood case to hold both units. Note improved blocking — also that cases are shipped in horizontal position, with skids on bottom and end for easy handling. Cleated plywood virtually eliminates transit damage. Total gross shipping weight: 800 lbs. — 210 lbs. of shipping cost saved.

IN YOUR CASE POSSIBLY A SIMILAR SAVING

What you pay for *shipping* includes what you pay for the containers, what you pay for *shipping* the containers (at the rate for the contents), and what you pay for damages.

Have Atlas Plywood — the "greatest name in plywood" — help you save all you can on these costs. Our "Shipping Container Clinic" offers a free service for testing your present containers under all kinds of simulated conditions — and recommending improvements. There's no cost or obligation — and you are invited to come along and watch the tests.

Your Atlas Plywood representative (see Classified Telephone Directory) will be glad to make the arrangements. Or write to Mr. Rodney P. MacPhie, 1432 Statler Building, Boston. Mass.

Atlas Plywood

CORPORATION
FROM FOREST TO FINISHED PRODUCT

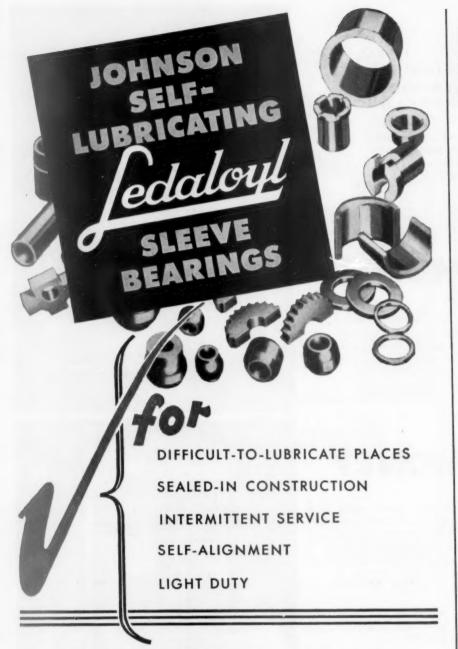




*Mfrd. by Jewett Refrigerator Co., Buffalo, N. Y.



PLYWOOD CONTAINERS FLUSH DOORS HARDWOOD PANELS



POWDER METALLURGY made possible this versatile bearing...molded pre-cast bronze alloy powder impregnated with oil for self-lubrication. Myriads of tiny, evenly spaced pores serve as miniature oil wells. When the bearing is in use the oil is metered to the shaft... when at rest, the oil is reabsorbed by the bearing. These Ledaloyl bearings are widely used for small motors and fans, and have wide acceptance for self-aligning applications. Their extremely low cost, (no machining necessary), makes them practical for use in many types of equipment where heavy duty is not a factor. A wide selection of plain, single flanged, double flanged and self-aligning Ledaloyl bearings is available from distributors' stocks, while special sizes and styles of bearings and parts can be made to order. Write for complete information. JOHNSON BRONZE CO., 450 South Mill St., New Castle, Pa.



(Continued from page 330) down 8.4% to \$68. Other drops reported were South Dakota, 7.3% to \$54; Georgia, 4.4% to \$62; Vermont, 3.1% to \$74; Minnesota, 2.2% to \$75; and less than \$1 drop for North Dakota with \$74 average and West Virginia with

Republic Offers Hydraulic Control Hose Selector

A Wiretex Rubber Covered Hydraulic Hose Selector has been prepared by the Republic Rubber Division, Lee Rubber & Tire Corporation, Youngstown, Ohio, and is being offered, free, to users of hydraulic control hose.

Starting with any known factor, such as the I.D., O.D., Minimum Burst, Working Pressure Required or Bend Radius, a designer or maintenance man can use the selector to determine the proper Rubber Covered Hydraulic Control Hose for the operation on which the hose will be used.

Iron Ore To Be Recovered For First Time Frem Nickel Ores

1 1 1

The International Nickel Company of Canada, Limited, has announced that in a historic mining development it is undertaking the production of byproduct iron ore from nickel ores in the Sudbury District of Ontario, where its mining operations are centered.

Outlining plans for the project, J. Roy Gordon, Vice President and General Manager of Canadian Operations, said the company was beginning immediately the construction of a \$16,000,000 plant in the Copper Cliff area as the first unit in an operation which will ultimately yield about 1,000,000 tons of high-grade iron ore a year, in addition to nickel, from Sudbury ores.

A trial-blazing new process, developed by the company's research staffs, made the undertaking possible, Mr. Gordon stated. A most important feature of the project is the resultant release of smelter capacity which permitted Inco to assume the five-year contract it recently signed with the United States Government for delivery of 120,000,000 pounds of defense-vital nickel without diversion of regular supplies from industry.

The new plant will supply iron ore higher in grade than any now produced in quantity in North America. Containing at least 65 per cent iron natural and less than 2 per cent silica, this ore will command a premium price for direct use in open hearth and electric furnace steel production in Canada and the United States. By comparison, ore from the famed Mesabi pits of Minnesota contains 51.5 per cent iron natural. The North American steel industry is presently largely dependent

(Please turn to page 324)



Think of CENTRAL



RESEARCH=An outstanding creation, Central (Patented) Stamped Wing Nuts answer the demand for a sturdy, low cost thumb nut. Available in steel or brass they provide easy adjustments and improve the serviceability and appearance of your product.



KNOW-HOW=Central's special skill in the manufacture of wing nuts is not limited to the stamped wing type with its many variations. Central also produces solid, sturdy, pressed wing nuts in four standard blank patterns, brass or steel, with all standard threads.



QUALITY=Central's research and know-how coupled with high precision, high speed equipment, insures unsurpassed quality in standard or special wing nuts that spin-on and grip securely. We invite you—take advantage of Central's ability to produce for you...fast!









"You Can Depend on Central"

CENTRAL SCREW COMPANY

3501 SHIELDS AVE., CHICAGO 9, ILLINOIS

3028 E. ELEVENTH ST., LOS ANGELES, 23 CALIF. . 149 EMERALD ST., KEENE, N. H.

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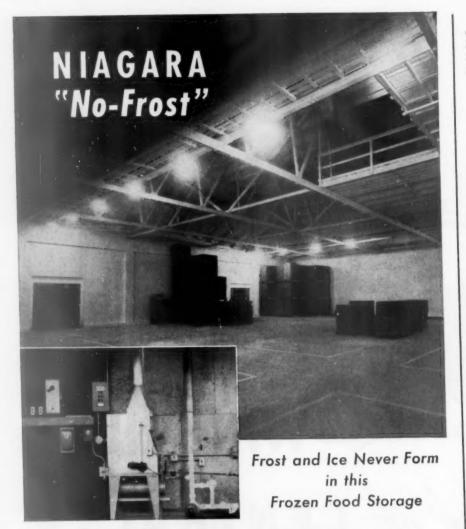
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SAVE TROUBLE AND EXPENSE EVERY DAY IN PRE-COOLING, FREEZING AND STORAGE; PROTECT FRESH OR FROZEN FOOD QUALITY

The Niagara "No-Frost" Method gives you always the full capacity you paid for in your refrigeration, NEVER, not even partially, interrupted for defrosting. You can handle large "live" loads easily. The controls are simple and always give you accurately the temperature and humidity you want. Temperatures never rise to interrupt the "pull-down". You are free of troubles; your rooms stay clean and sweet with easier maintenance and less labor. You save power; your compressors run at higher suction pressures. For every refrigerated room for temperatures below 32° F. this method gives you better product quality at lower operating costs. Many of the finest installations in the industry, both large and small, prove the benefits of the Niagara No-Frost Method.

Write for the No-Frost story and data on its application to your problem. Ask for Bulletin No. 105.

NIAGARA BLOWER COMPANY DEPT. PU 405 LEXINGTON AVENUE, NEW YORK 17, N. Y.

OVER 15 YEARS OF SUCCESSFUL EXPERIENCE PROVES THE VALUE OF NIAGARA NO-FROST

(Continued from page 322)
on imports from such countries as
Brazil, Venezuela, Sweden and Liberia
for its requirements of ore as high in
grade as Inco will produce.

A.M.A. Offers New Booklets In Packaging Series

1 1 1

Purchasing men will be interested in three new booklets issued in the Packaging Series prepared by the American Management Association.

First of the booklets is "Aids to Efficient Packaging Operations." Covered in the contents are the following subjects: A New Approach to Packaging Operations; The Accurate Writing of Packaging Specifications; Getting Optimum Performance from Filling Equipment; Automatic Processing of Orders for Packaged Products; Packaging's Role in Reducing Distribution Costs.

Among the topics covered in the second booklet, "Advances in Packaging Material and Design," are: Characteristics and Applications of New Plastic Films; A Checklist of Packaging Adhesives and Their Uses; Packaging Problems in Re-Designing a Product Line; Producing the Right Folding Box for Your Product.

"Practical Problems of Packing and Handling" covers: Reduction of Product Damage in Shipping; A Materials Handling Research Program; The Packaging of Odd-Shaped Parts; Measuring Material-Handling Truck Performance.

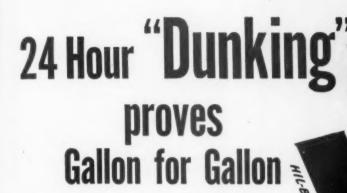
Copies of the booklets are available from the American Management Association, 330 West 42nd St., New York 36, N.Y., at \$1.25 per copy.

Exposition To Display Foreign Made Machine Tools

An international showcase for the metal-working industries will be opened in Brooklyn, New York, when the First International Machine Tool Exposition starts there on October 5. It is said to be the first time in industrial history that such an assemblage of machine tools has ever been permanently exhibited under one roof.

The First International Machine Tool Exposition is designed to fill the pressing need for a permanent center for the display of American and foreign machine tools. It will keep world-wide manufacturers continuously apprised of the latest developments and methods of the machine tool industry.

Sponsored by the S&S Machinery Company, the exhibit will raise the curtain on many new American and foreign tools, types and uses of which have never before been exhibited. The display will include approximately 1000 tools, including production, toolroom and metal fabricating equipment.



Results of water-re sistant tests at test ing laboratories show: no wash-off loss; no dulling of gloss; Super Hil-Brite does not turn milky ofter 24 hours Other waxes tested

U/L approved "slip-resistant."

L-BRITE WAX costs you less

because it Protects Longer!

Famous self-polishing SUPER HIL-BRITE demonstrates amazing water-resistant features-proof of long wearing qualities, achieved by 100% use of highest grade imported Carnauba wax. So call a halt to inferior waxing with cheap waxes that contain brittle shellacs, varnishes, resinous materials that "flake off" or build up to discolor the floor, require expensive strippings and frequent rewaxings. Switch to quality SUPER HIL-BRITE. Save three out of four waxings, get better looking floors, at the same time save your clean-up crew hours lost by unnecessary waxings and stripping.

The Hillyard Maintaineer is "On Your Staff -Not Your Payroll"

Find Out how to give your floors the SUPER HIL-BRITE beauty that lasts!

Send for FREE HILLYARD BOOKLET

Shows how SUPER HIL-BRITE's anows now SUPER FILL-BRITE's great water - resistance eliminates frequent waxings and strippings, saves maintenance costs for thousands of hospitals, schools, industrial, commercial and public buildings.

Make these money-saving ad-vantages yours; send for Hill-yard's new SUPER HIL-BRITE folder "Why Strip?" It's free on request.

HILLYARD CHEMICAL CO., St. Joseph, Mo.

Write for Free Demonstration on Your Floors To-day. Show me how QUALITY SUPER HIL-BRITE Wax will reduce waxing frequency and costs.

Name. Title. Institution. Address

State

ST. JOSEPH, MO.



No matter what your requirements for gray iron castings may be — from half a pound to half a ton — when you make Forest City Foundries Company your cast-iron parts department you can depend upon receiving your castings as specified, delivered when wanted. All you need do is, call our office as you would your own production department.

Here patterns are carefully numbered, indexed and stored in our new fireproof storage department for instant availability. When inspection reveals the advantage of making changes that will improve the quality of the finished product, our skilled pattern engineers are prepared to make such recommendations.

Our representative will be glad to call to discuss your requirements and our ability to meet them in our two large foundries equipped with the most modern equipment.



Each pattern is carefully stored for instant availability. (Inset photo) — A corner of one of Forest City's pattern shops.

FOREST CITY FOUNDRIES Company

1500 MESTOZYTH STREET A GLEVELAND 13, ONLO

TELEPHONE TOWER 1-5040

Report Industry's Capacity To Produce Meeting Demand

Industry's capacity to produce goods is catching up with national demand, according to the replies of executives of 159 manufacturing companies cooperating in a survey recently completed by the National Industrial Conference Board.

Three out of four companies indicate that capacity and demand for their major product lines are substantially in balance and many claim they now have some surplus capacity.

Only 7% of all companies covered report current demand for their major lines still in excess of the industry's capacity to produce, while 17% of all companies replying find their industry's present productive capacity to be beyond the requirements of consumption.

Approximately 13% of cooperating companies expect that some capacity in their industries will be retired in the foreseeable future — primarily marginal plants which will be abandoned whenever demand no longer justifies their continued operation.

Where competition is already severe, some small concerns are being forced to quit, but as yet, The Conference Board found, the volume of capacity thus retired compared to the total is negligible.

Capital Expenditures Higher in '53

Plans for 1953-54 capital expenditures are quite firm, according to almost 95% of companies reporting in the NICB survey.

Forty per cent of cooperating manufacturing companies expect to spend more on capital projects this year than in 1952, as compared with 33% of the companies which report lower capital expenditures in 1953. The remaining companies see little change in their 1953 rate of capital spending from 1952.

More than three times as many companies (46%) plan to reduce their 1954 capital expenditures below the 1953 rates as expect an increase (14%), while the remaining companies foresee little change in their 1954 rate of capital spending.

Some companies cooperating in the NICB survey report that their program for capital expenditures will be supbstantially completed by the end of 1953. Others, experiencing poor business, are keeping capital expenditures as low as competitive conditions will allow.

Standards Are Your Business Booklet Issued by ASA

"Standards Are Your Business," a 24-page booklet defining standards of production and their value as tools of management, appears in a new, revised edition just issued by the American

(Please turn to page 328)

Read pressure, temperature or flow at a distance with USG Pneumatic Receiver Gauges



Quality Sauges Engineered for Enduring Accuracy

PRODUCTS OF UNITED STATES GAUGE... Absolute Pressure Gauges . Aircraft Instruments . Air Volume Controls . Altitude-Gauges . Boiler Gauges . Chemical Gauges * Mercury, Gas, and Vapor Dial Thermometers * Glass Tube and Industrial Thermometers * Flow Meters * Inspectors' Test Gauges * Precision Laboratory Test Gauges * Marine, Ship and Air-Brake Gauges * Voltmeters * Ammeters * Welding Gauges

> OTHER DIVISIONS OF AMERICAN MACHINE AND METALS, INC., AT SELLERSVILLE, PA.: GOTHAM INSTRUMENTS AND AUTOBAR SYSTEMS

d

G

recision

CONE SHAPES AT A SAVING

*SIZES: 1" to 30" lengths.

*TAPERS: 45" to 44°.

*TOPS: Straight, round, open, closed.

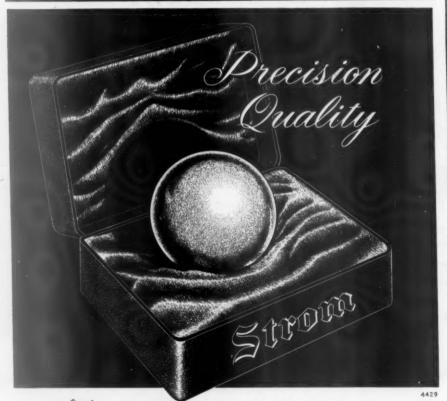
*FINISHES: Smooth, rough, ground, flocked.

Cones may be impregnated for strength, toughness and waterproofed. They can also be perforated, flocked, printed, lacquer tipped, scored, notched, covered with novelty wraps. Also supplied in various colored stock. We make cone shaped containers. Our complete laboratory and engineering service will consider any problem. If it can be made out of paper, and will save money, we can make it for you.



SONOCO PRODUCTS COMPANY

MAIN OFFICE-HARTSVILLE, S. C.
MYSTIC, CONN. LOS ANGELES, CAL. BRANTFORD, ONT. G
DEPENDABLE SOURCE OF SUPPLY



TOM STEEL BALL CO.

Largest Independent and Exclusive Metal Ball Manufacturer 1850 SO. 54th AVE., CICERO 50, ILLINOIS (Continued from page 326)

Standards Association to emphasize the economic importance of standardization.

The booklet gives the philosophy and objectives of the voluntary standards movement in this country and contains considerable new material, including a section on Federal Government policy toward industry standards. Included are specific examples of recent savings through standardization effected by leading U.S. corporations which are named.

Copies are available without charge from the American Standards Association, 70 East Forty-Fifth Street, New York 17, N. Y.

Offer Electrode Selector Chart

A new four-page electrode-selector chart designed to present up-to-date information on the complete line of G-E welding electrodes has been announced as available from the General Electric Company, Schenectady 5, N. Y.

The chart, designated GEC-657E, contains condensed data on the company's line of mild-steel, low hydrogen-low alloy, low alloy-high tensile, hard-surfacing, and stainless-steel electrodes.

Tabular material includes welded properties, metal deposit analysis, technique, type of specification requirements met, major competitive types, description and advantages, and application data for each type of electrode

Yale & Towne Has New Financing Plan on Industrial Trucks

1 1 1

A new, complete and flexible financing service for the sale and lease of industrial lift trucks has been announced by The Yale & Towne Manufacturing Company. This service has been instituted by the company in New York through a wholly owned subsidiary, The MHE Corporation, and is now available to customers of Yale & Towne's Yale Materials Handling Division in Philadelphia and the Automatic Transportation Company in Chi-

The new financing service, President G. M. Chapman said, "offers to those businesses and industries which do not wish to make the cash investment necessary for outright purchases, the opportunity to obtain Yale or Automatic materials handling equipment under a modern and economical financing plan. This will spread the advantages of materials handling equipment to many companies, large and small, whose purchases of industrial lift trucks have been postponed be-

(Please turn to page 330)



GOOD HEADS ... GOOD THREADS ... GOOD BOLTS

If you are looking for a good line of standard bolts, one which combines quality and variety, choose Bethlehem Bolts.

Bethlehem machine, carriage and lag bolts are well made from top-quality steel. They have good, strong heads and smooth-running threads, and come in all types and sizes. We also manufacture a full line of turnbuckles, clevises, rivets, spikes, washers and nuts.

Bethlehem Bolts are good, dependable bolts-good bolts in every way.



BETHLEHEM STEEL COMPANY BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

Bethlehem supplies every type of Fastener

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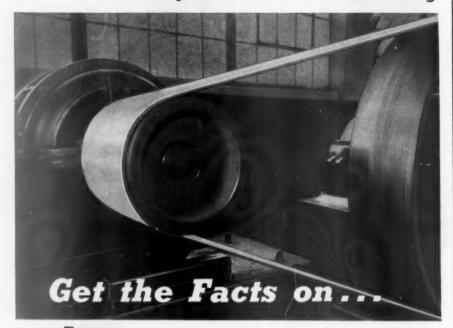
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Before You Buy Transmission Belting



B It is unequaled for its strong, glove-like grip. Unequaled for its stamina and shockresisting qualities. Unequaled for its long service and low maintenance. It has the ability to deliver a smooth, uniform flow of power.

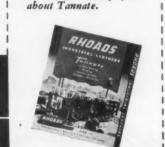
Behind the long and successful history of Tannate Belting is Rhoads unmatched experience—250 years. The specialized knowledge of producing superior industrial leathers can be put to work for you. Likewise, every modern facility at our disposal—the research and chemical laboratories, the highly qualified engineers, chemists, tanners and belt-men. With "rolled-up sleeves" these men help give you the best in transmission belting as well as the best service.

Our sales engineers will gladly confer with you, make preliminary drive surveys, design a drive to meet your particular needs . . . even train one of your men in the proper installation and maintenance of Tannate Belting.

The next time a Rhoads sales engineer calls upon you, listen to the facts — they'll help you. Or, if you prefer immediate data, write for descriptive literature to

J. E. Rhoads & Sons, 35 N. Sixth St., Philadelphia 6, Pa.

Leather Belting is "custom-engineered" from raw hide to finished product. Its unusual characteristics, not found in any other belt, are the results of special tanning processes. Consequently, Tannate is strong and resilient, adaptable to a variety of drive conditions where ordinary belting is not applicable.



Write for Rhoads com-

plete data file on belting. It contains many facts

RHOADS
INDUSTRIAL LEATHERS

PHILADELPHIA · NEW YORK · CHICAGO · ATLANTA

(Continued from page 328) cause of their necessity to conserve available capital funds."

The two principal features of Yale & Towne's new service are a "time sales" plan for the purchase of equipment by customers who wish to defer payments for as long as 36 months, as well as a "leasing" plan for those who desire to lease rather than purchase lift trucks. The plan permits leasing gas trucks from two to five years and electric trucks from two to nine pears, and also provides options for either renewal or purchase.

Norton Researcher Develops New Form of Mineral

Loring Coes, Jr., Assistant Director of Research and Delevopment at Norton Company, Worcester, Massachusetts, has developed in the laboratory a new form of mineral, not found in nature. By simulating the conditions of pressure and temperature by which nature forms the rocks of the earth's crust, Mr. Coes produced a crystallized silica, much harder and a fourth more dense than ordinary quartz. Its hardness is comparable to that of garnet or topaz, with a Knoop hardness value of about 1300 measured with a 100 gram load.

This new rock was formed by subjecting various substances containing silicon and oxygen to a pressure of 35,000 atmospheres at a temperature of 750 degrees Centigrade for 15 hours. These conditions would be duplicated in nature at about 60 miles below the surface of the earth.

Although this new material resembles mica, one of the common constituents of quartz containing rocks it is considerably harder and does not react to chemical tests as does mica.

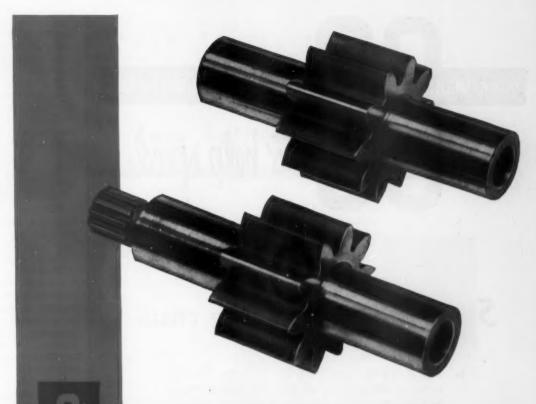
The commercial possibilities of the new dense silica have not been explored as yet. It may find use as a specialized abrasive or in piezoelectric crystals. Production costs would probably be quite high. Continuing research may develop other applications.

A.S.A. Issues Revised Raceways Standards

All the latest known developments in the design and manufacture of raceways for electric wiring systems have been included in three revised American Standards released by the American Standards Association.

Two specifications for rigid steel conduits, both enameled and zinc coated, and the American Standard for Electrical Metallic Tubing Zinc Coated comprise a series developed by the Sectional Committee on Steel Raceways for Electric Wiring Systems. They may be obtained from American Standards Association, 70 E. 45th St., New York 17, N. Y.

The objective of the committee was to produce a comprehensive specifica(Please turn to page 332)



ONLY MOVING PARTS do the pumping in a Pesco Hydraulic Pump

This SIMPLICITY OF DESIGN is important for these reasons!

reliability—less chance of pump malfunction

Mess maintenance

Mess cost for overhaul

less weight . . . less noise

Add Pesco Simplicity of Design to Pesco's exclusive, patented "Pressure Loading" principle, which results in volumetric efficiencies up to 97% and torque efficiencies up to 90%, and you have two important reasons why so many industrial and aircraft manufacturers have standardized on Pesco pumps.



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Dakite cleaning materials to help speed your production

5 ways to cut cleaning costs

- Use a material designed for the job. No one material will remove all soils. A cleaner made to remove light grease won't work on carbon.
- 2. Use the right amount of material. Too much is wasteful; too little is inefficient.
- 3. Use the right method to apply the material. Detergents designed for tank cleaning may not work as well in the spray machine.
- 4. Don't buy cleaners on a cost-per-pound basis alone. Cheap materials often break down fast, require more upkeep, cost more in the long run. Think before you buy—in terms of results, solution life, safety.
- 5. Discuss even your routine cleaning operations with a cleaning specialist before you decide on a material. He'll fit the cleaner to your problems, your water conditions, equipment, operating temperature, production schedule. He'll see that you get the most for your cleaning dollar.

Your Oakite Technical Service Representative is just such an expert, and his services are free. Call him today, or write Oakite Products, Inc., 54 Rector St., New York 6, N. Y.



(Continued from page 330) tion for uniform dimensions and standard construction requirements for rigid steel conduit and electrical metal-

lic tubing raceway systems.

The group also provided specifications for components for the systems, including elbows, couplings, connectors, bushings and lockouts. Even standards for threads of conduits and fittings were a part of the committee's scope.

Plastics Exposition Set For June, 1954, in Cleveland

The Sixth National Plastics Exposition for representatives of business, industry, government, and the military, will open on June 7, 1954 and run through June 10, 1954, at the Public Auditorium in Cleveland, Ohio. P. H. Grunnagle, Chairman of the National Plastics Exposition Committee of The Society of the Plastics Industry, Inc., in announcing the dates, stated that all branches of the plastics industrymolders; laminators; extruders; fabricators; reinforced plastics products manufacturers; film, sheeting, and coated fabrics processors; raw materials suppliers; machinery and equipment manufacturers; tool, die and mold makers; and others-will exhibit the latest examples of plastics industry progress to an expected attendance of well over 12,000 industrialists.

Plastics raw materials production is now over a million tons a year, and plastics applications have climbed steadily since the first Exposition held in New York in 1946. Industry estimates place the dollar value of plastics products made from all plastics raw materials at \$1.5 billion for 1953; and it is expected that the new and improved materials, products, techniques, and machinery to be shown at the Exposition will stimulate even greater acceptance of these versatile materials by industry.

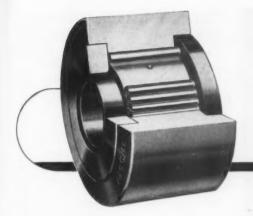
The National Plastics Exposition is sponsored by The Society of the Plastics Industry, Inc., New York, a trade and technical society representing 791 companies and 2,015 individuals in the plastics industry throughout the United States, Canada, and 15 other countries.

G.E. Offers Buyer's Guide of Testing Instruments

A buyer's guide on electric testing instruments has been announced as available from the General Electric Company, Schenectady 5, N. Y.

The new 16-page bulletin, designated GEA-5469B, provides data on such instruments as hook-on volt-ammeters, hook-on wattmeters, hook-on power-factor meters, portable recorders, voltmeters and ammeters, phase-sequence indicators, hand pyrometers, surface roughness scales, insulation-resistance meters, and others.

Application data, features of each instrument, and prices are included.



to increase the versatility of cam follower applications

The ever increasing number of cam action applications in modern machinery is partially responsible for insuring greater efficiency and productivity through increased automatic operation. Helping to make this possible is the availability of a precision means of converting motion originating through cam action to adjacent mechanisms with an adequate anti-friction cam follower bearing.

The first such bearing acceptable to machine builders was produced by McGill and is now used extensively in all types of automatic machinery. The MULTIROL Cam Follower design requires mounting by means of securing the stud, leaving the anti-friction roller free to follow the cam.

Another more recent McGill development in cam follower design is the MULTIROL CYR series bearing that uses an inner race rather than the conventional stud. The bearing is sealed with roller retaining end plates tightly fitted and secured to the shoulders of the inner ring. Yoke mounting is possible where desirable with the CYR bearing on shaft sizes ranging from 1/4" to 11/4" for corresponding roller diameters of 3/4" to 4".

The CYR series bearing is non-separable with a thick outer race section to withstand the heavy shock load encountered on all types of cam applications found on automatic machinery. This heavy duty bearing is not only suitable to direct cam action over a wide speed range but it can be applied as a means to control motion of machine parts that require quide or support rollers. Examples include lathe or planer beds, welding machine heads, aircraft wing flaps, wire straightening rollers, etc.

Other MCGILL Bearings







MULTIROL CF

MULTIROL SE

A new 140 page Bearing Reference Guide complete with 30 pages of vital engineering data has just been released by the McGill Manufacturing Company. It has the full story on the advantages of MÜLTIROL CYR Bearings as well as information on MULTIROL CF and SE and GUIDEROL Bearings. Send now for your copy of McGill Catalog No. 52.



Bucyrus-Erie Company, South Milwaukee, Wisconsin uses MULTI-ROL CYR series bearings as quadrant rollers on the operating lever that controls the bucket on their TD-9 one yard Dozer-Shovel. These bearings allow easy and free lever motion as they ride the quadrant cam in one of four positioning pockets. McGill GUIDEROL bearings are used in the PVT hydraulic unit on this same Dozer-Shovel.



Typical of the varied uses MULTIROL CYR bearings can satisfy are the track rollers on the highly precision Process Copy Cameras built by Consolidated Hammer Dry Plate and Film Company of Chicago, Illinois. Here four CYR bearings support and guide the copy board along rails before the camera. These bearings permit free and accurate adjustments for sensitive camera focus.

-Precision Bearings McGILL MANUFACTURING COMPANY, INC. 400 N. Lafayette Street, Valparaiso, Indiana



Plastics Acceptance Reaches New High; "Blackeye" Has Gone

Manufacturer and consumer interest in and acceptance of plastics, particularly in large molded shapes, is reaching an all-time high, it was reported recently at the Midwestern Plastics Conference held at The Drake. The conference was sponsored by the Committee on Large Plastics Moldings of the Society of the Plastics Industry.

According to John Bachner, chairman of the Committee, the basic reasons for this significant increase in the acceptance of plastics are:

 Designers are capitalizing more fully on plastics' properties—using them to design more attractive, more functional, and more salable products.

 Plastics materials suppliers and custom molders are contributing more help and guidance in the development of new products both in product design and in the selection of the proper plastics materials.

The industrial and consumer press have been most active in educating people to the advantages and the limitations of plastics.

Engineering conferences such as this one were cited by Mr. Bachner as another important factor in opening up thinking on new applications.

"Blackeye" Has Gone

As a result of such educational activities and the interchange of knowledge among suppliers and users, the "blackeye" plastics got during the War, when hastily and often improperly pressed into service as a substitute for critical materials, has gone, he said.

It was brought out at the conference that plastics are not a panacea. They have limitations as well as advantages. However, their many fine properties and production benefits are more widely understood by manufacturers; and their ease of cleaning, strength, durability, and beauty in modern functional shapes are being understood by the consumer.

Concrete evidence of this lies in the highly successful trend toward plastics radio, TV, and phonograph cabinets; the new Servel Wonderbar refrigerette; unit air conditioner housings; office machine housings; furniture drawers; fan housings; and many other products for home, office, and industry.

Vinyl Plastic and Sheet Metal Laminated In New Process

A method of laminating vinyl plastic and sheet steel or aluminum which will make these metals colorful, decorative and permanently rust and corrosion proof has been developed by the Naugatuck chemical division, United

(Please turn to page 336)



For the long haul... Autocar relies on RB&W bolts

Famous truck builder rates them best for ease of assembly and accessibility

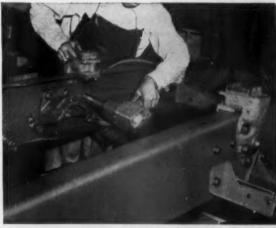
It's been a long time since the Autocar people switched from riveted to bolt-and-nut construction. Here's how it happened:

Two Autocar engineers took off on a coast-to-coast run to shake the bugs out of a new test model. Things went well until a riveted spring bracket broke. It took an entire day just to chisel through the rivets because it was hard to get at the bracket.

From that day on, it was accessible bolt-and-nut construction exclusively for all Autocar trucks. And Autocar standardized on RB&W bolts. One dividend from using these rugged bolts is that Autocar can specify higher-strength material than is practical for riveting. Furthermore, tests on structures like bridges show that rivets frequently loosen. This doesn't happen to bolts on Autocar frames.

Where you want to join structural members firmly together so they'll stay together for good, high-strength bolting is often your best bet.

As the leading manufacturer of all kinds of fasteners, we're in the unusual position of always being able to recommend and supply the right ones for all your needs. Write to RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY, Port Chester, N. Y.



FASTER FASTENING is achieved in the Autocar plant at Ardmore, Pa., by using air tools like the one shown here to run up RB&W nuts on RB&W bolts on an Autocar truck frame. In addition to making tight, accessible joints, bolting effects substantial assembly savings.



108 YEARS MAKING STRONG THE THINGS THAT MAKE AMERICA STRONG

Plants at: PORT CHESTER, N. Y., CORAOPOLIS, PA., ROCK FALLS, ILL., LOS ANGELES, CALIF. Additional sales offices at: PHILADELPHIA, PITTSBURGH, DETROIT, CHICAGO, DALLAS, SAN FRANCISCO. Sales agents at: PORTLAND, SEATTLE. Distributors from coast to coast.

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Potter & Brumfield

STANDARD RELAYS

offer you



important advantages

PROVEN

P & B's 20 years' experience in relay design is your assurance of long, troublefree performance.

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PAST

Orders for standard relays can be filled from stock or with a minimum of delay.

LOWER

These relays are already tooled. Mass production economies are passed on to you.

DISTRIBUTOR SALES

Popular types available through P & B Distributors located in all principal cities.

> MORE THAN 110 P& B FIANDARD RELAY STRUCTURES FOR EVERY ELECTRICAL AND ELECTRONIC APPLICATION

Conoral Purpose
Power
Multiple Contact
Multiple Leaf
Lotching
Plate Circuit

Telephone
Motor Starting
Photo Flash
Control
Sensitive
Miniature
Shack Proof

Write for new master catalog describing our wide line of basic relay



structures, housings and enclosures. Samples, quotations and recommendations promptly furnished on special problems.

POTTER &



PRINCETON, INDIANA

Export: 13 E. 40th Street, New York, New York Sales Engineers in Principal U. S. and Canadian Cities (Continued from page 334)

States Rubber Co.

The process combines the structural strength of metal with the bright colors and exceptional corrosion resistance of vinyl plastic. It promises to be one of the most significant advances for the metals and plastics industries in the last decade, the company believes.

More than 20 manufacturers of containers, business machines, chemicals, metals and allied products are now experimenting with the process.

Some of the products which can be made from the plastic-metal laminate are decorative and weatherproof building siding, interior paneling, colorful lawn furniture, office and industrial machine housings, inexpensive corrosion resistant containers for chemicals, chemical piping and ducts, truck and trailer body panels, counter tops, shelving and lockers, and office furniture.

The process consists of bonding Marvinol, Naugatuck chemical's vinyl, to sheet steel or aluminum. The resulting laminate, called Marvinol-Metal Laminate, has a higher abrasion resistance than varnish, paint and baked enamel finishes. In addition, the bond of the plastic to the metal is so strong that 180 degree bends and deep draws can be made without separating the vinyl from the metal.

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Revised Transformer Standards Published by A.S.A.

Revisions of four American Standards for transformers have just been published, the American Standards Association has announced.

The revisions were made by ASA Committee C57, headed by John H. Chiles, Jr., manager of engineering, Westinghouse Electric Corporation's Transformer Division, Sharon, Pa. Mr. Chiles represents the National Electrical Manufacturers Association on the committee. The group, formerly headed by F. L. Snyder, also representing NEMA, has been working on the project eleven years.

Major revisions in the standards include additions to the terminology and general requirements for transformers, regulators and reactors; and a table to indicate temperature changes and additional information in loading and operation of instrument transformers (C57.10, .11, .13 and .33).

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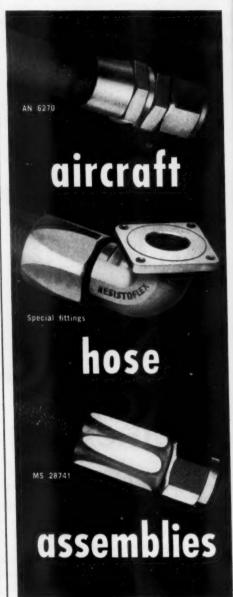
Truck Trailers Using More and More Reinforced Plastic Parts

Reinforced plastic, which is gaining increasing attention as a structural material for automobile bodies, is being used extensively in the production of large truck trailers by the Strick Company of Philadelphia, Pa.

Three out of four of the trailers

Three out of four of the trailers rolling off the Strick production line,
(Please turn to page 340)

RESISTOFLEX



6 REASONS TO CONTACT US

- 1. A major source of supply
- 2. Fast quoting service
- 3. Excellent delivery
- 4. Competitive prices
- Air Force Approved Quality Control System
- Government approved source for over 10 years

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Belleville 9, N. J.

You're sure of UNIFORM HIGH QUALITY

SEAMLESS . PRESSURE . MECHANICAL

STEEL TUBES

when you specify GLOBE

SIZE RANGE - WALL THICKNESS

Globe seamless carbon steel tubes are available in a size range of $\frac{1}{2}$ inch to $\frac{7}{2}$ inches O.D.; wall thickness of .028 to 1.000 inch.

APPLICATIONS

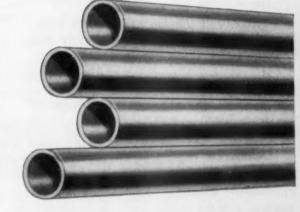
Globe Pressure Tubes are used for boilers, condensers, heat exchangers and process equipment. They meet most exacting demands of modern high pressure and high temperature installations. Globe Mechanical Tubing (seamless) is produced by piercing solid billets. It is an ideal material for low-bearing structural members and parts where strength with minimum weight is needed. Its economy for the manufacturing of many machine parts is universally recognized.

Globe seamless carbon steel tubes are furnished to standard specifications in low and medium carbon ranges.

When you specify Globe you are sure of uniform high quality carbon stream thes. That's because they are the product of highly developed production facilities and specialized quality controls and methods.

Globe engineers are at your service to assist in the selection of tubing of the exact characteristics you require.





GLOBE

STEEL TUBES CO.

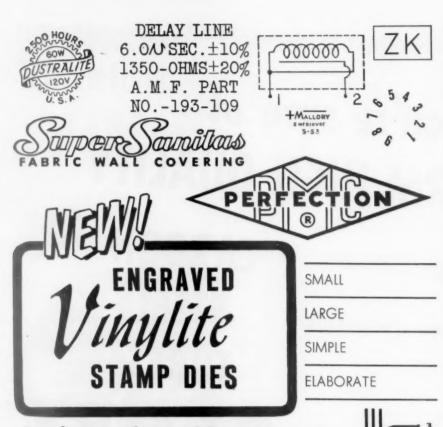
MILWAUKEE 46, WISCONSIN

Chicago • Cleveland • Philadelphia • St. Louis • New York • Detroit • Denver • Houston • San Francisco Glendale, Calif.

Producers of Globe seamless stainless steel tubes — Gloweld welded stainless steel tubes — alloy-carbon seamless steel tubes — Globe welding fittings.

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Are better than <u>rubber</u> 3 ways

ENGRAVED Vinylite IS ACID-PROOF

Acid etching inks, used for permanent stamping on metal and all non-porous surfaces will eat away at rubber. Vinylite resists this action—gives longer life by far!

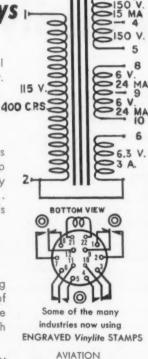
ENGRAVED Vinylite STAMP DIES GIVE RAZOR-SHARP IMPRESSIONS EVERY TIME

Opaque inks will clog shallow rubber stamp faces rapidly. Our deep-molded engraved VINYLITE stamp faces have more than three times the depth of ordinary rubber stamps. Markings always remain super sharp... the clearly identifying mark that distinguishes and labels your product of quality.

ENGRAVED Vinylite STAMP DIES HAVE CUSHION-LIKE RESILIENCE

Our VINYLITE molding process includes a timed curing that imparts to this versatile plastic all the elasticity of rubber. Resilient VINYLITE STAMP DIES resist abrasive action, conform to irregular surfaces . . . and last much longer!

Engraved Vinylite Stamp Dies are adaptable to any automatic or hand marking device. They can be used to stamp on every surface, metal, wood, fabric, paper, plastic, etc.



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ELECTRONICS
PLASTICS
POTTERY & CHINA
PACKAGING

KRENGEL MANUFACT 227 Fulton St., New Yo		O., INC. Tel. CO 7-5714	Dept. 2A
Please check the folk FREE Vinylite Sample & Price List Please have salesman call for appointment	owing:	NAME. COMPANY. STREET. CITY ZON	

Why Association Activity Is So Important To The P.A.

Many management executives, particularly those who are sales-minded, give little thought to the purchasing department, so long as materials and supplies keep coming in sufficient volume to satisfy production.

Should the volume of sales show signs of falling off, as is now apparent in some lines, then management starts looking around to conserve cash. The purchasing department is the first place they stop, because most of the spending is channeled through this department.

A survey by the National Industrial Conference Board found that in large manufacturing companies 56¢ of the 1952 dollar was spent for purchased materials and services. It follows that the purchasing department can be a source of substantial savings through the application of modern purchasing principles and practices.

Although it may have been only a few months ago that the P. A. was commended for the good job he was doing in keeping production going, he may now find that some of his purchases are being scrutinized.

It is very probable that some purchases may be subject to criticism through no fault of the purchasing department. Too often the P. A. is the "forgotten man" when new lines are brought out, or when new production schedules are set up. At the last minute he was told about the new requirements and was forced to pay some fancy prices to obtain the required delivery of materials. If he had been consulted at the beginning he probably could have done better or suggested possible substitutes

The modern purchasing agent is conscious of the good job he can do for his company if given the opportunity, but too many capable men are so overloaded with detail work that they don't have sufficient time to use some of the newer purchasing tools, such as value-analysis, simplification and standards.

Progressive management is alive to the importance of the purchasing agent on their management team. He sits in conference with the sales, engineering and production men. His advice is sought on new products and processes, price trends, market conditions, possible substitute materials and many other matters. He is encouraged to ask "why?"

Progressive purchasing agents are well aware that in order to play on the management team they must be alert to the ever-changing times which bring a constant flow of new products, processes, sources of supply and ideas to their attention. They never stop learning.

Active participation in your Purchasing Agents' Association is one of the best ways to keep informed.

—An Editorial in the Connecticut Purchaser, by Fred A. Harvey.



Sparks at a screw machine ignited cutting oil to start this fire that destroyed the Aluminum & Brass Co., Lockport, N. Y. Loss \$312,000.

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DRY CHEMICAL FIRE EXTINGUISHER

Quick action with Buffalo Dry Chemical Extinguishers can stop disastrous industrial fires like this when they start! And "quick action" is easy when Buffalo Dry Chemical Extinguishers are close by. They give instant protection against all flammable liquid and electrical fires by releasing a heat-resistant, flame-suffocating, chemical cloud-like stream, up to 20 feet. The insulating effect of the chemical cloud allows the operator to get to the seat of the fire. Buffalo powder produces 1100 times its volume in nontoxic, flame-killing gas on contact with flames.

Buffalo manufactures a complete line of extinguishers for positive protection from every fire hazard. Order Buffalo fire protection today! Consult your Classified Telephone Directory or write for your nearest Buffalo distributor.

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LONGER RANGE EXCEEDS UNDERWRITERS.
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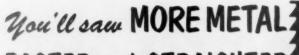
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FASTER and STRAIGHTER

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and here's why . . .

BLADE IS STRAIGHT, FLAT . . .

without dish or bow, and . . . a blade must be straight to cut straight.



TEETH ARE SHARP

Milford "Multiple-Pass" Milling assures sharper, more uniform teeth with smoother gullets, and it takes a sharp saw to cut really clean and fast.



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Side-to-side tolerance and overall set is held to close limits. Only an accurately set blade can saw straight and operate smoothly.

M-2 HIGH SPEED STEEL . . .

This is the most modern analysis of red hardness saw steel and combines full hardness with unusual toughness.

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gives a high Rockwell hardness that means a longer blade life cutting harder metals . . . plus a fine grain structure that prevents tooth chipping or crumbling under pressure.

BUT DON'T TAKE OUR WORD

that you can't buy a better blade anywhere than a MILFORD All-Hard REZISTOR. TRY ONE on your own tough jobs in your own shop and SEE FOR YOURSELF!

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NEW HAVEN 5, CONNECTICUT PROFILE BLADES AND BAND SAW BLADES HAND AND POWER HACK SAW BLADES

Sold through MILFORD Distributors who render a service tailored to your needs. The Industrial distributor is familiar with the requirements of industrial users in his area. His is a prompt personalized service, as near as your telephone.

(Continued from page 336)

which turns out a completed unit every 30 minutes, have skylight roofs made from panels of reinforced plastic. Others have reinforced plastic sides, interior liners and doors. The plastic parts are molded by Strick from fibrous glass and Vibrin, a polyester resin made by the Naugatuck chemical division, United States Rubber Co.

Strick, one of the country's largest truck trailer manufacturers, has adopted reinforced plastic because it is strong, dent-proof, corrosion-reresistant, translucent when unpigmented and so light in weight that it gives trailer operators a weight advantage of up to 1,000 pounds.

Economic Applications

Semond Levitt, head of Allied Plastics Corporation, a Strick affiliate, claims the new material has many economic applications in the cargo hauling industry and calls its use "the first important forward step since frameless aluminum trailers, introduced by the Strick Company over a decade ago."

The skylight roof trailers have one or two reinforced plastic panels, eight by four feet, built into the roofs. The plastic is unpigmented and lets enough light into the trailer to read shipping labels and thus speed up loading.

Since it is corrosion resistant, as well as strong and light, the plastic is also used for complete sides and roofs of a number of van-type trailers. These are used to haul corrosive materials, such as commercial chemicals. Service reports indicate the trailers will have considerably longer life than those previously used for corrosive materials, Strick says.

In most Strick refrigerated trailers reinforced plastic is now used for interior liners because it stands up under the abuse of loading and unloading, will not rot or become contaminated, and will not swell under steam cleaning—a regular procedure with refrigerated trailers.

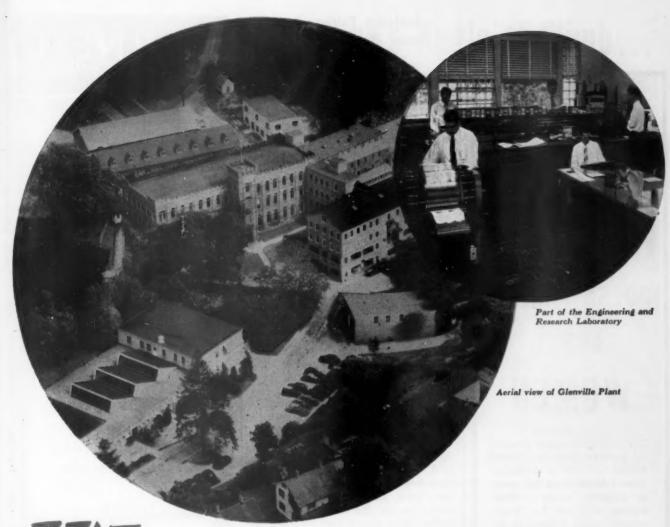
Molded Doors and Frames

Nearly all the company's insulated trailers are equipped with molded plastic doors and door frames. The door sections, which are up to 200 pounds lighter than wooden ones, are molded in one piece and are filled with an insulating material. They are strong, rust-proof, warp-proof, and will maintain their tight fit for the life of the trailer, according to Strick.

The doors are molded by a vacuum impregnating method, in which the plastic resin is sucked up into the mold cavity in which the fibrous glass has been previously placed. Side panels (four by eight feet), roofs and interior liners are made in a large press.

The roof panels are less than 1/16-inch thick. Side panels are 3/32-inch, except for a three-foot band at the bottom which is built up to 1/8-inch for added strength.

ALL HARD REZISTO



FELT problems are welcomed here

-AND SOLVED!

American makes felt in actually hundreds of different types, each having carefully-controlled characteristics. Felt, you see, is not just felt, but is an engineering material, which can be, and should be, selected and specified as closely as any other material.

American is keenly progressive and has a vast knowledge of all types of natural and synthetic fibres. Felt is now engineered into the various end uses. Our knowledge is freely available to you, through our sales staff, or from the Engineering and Research Laboratory.

How important it is to obtain the right felt is illustrated by the case of a customer who insisted on "saving money" by buying a felt which we insisted was not suitable for the application. In the end, the saving produced a loss, and the customer, having learned the hard way, now relies upon our advice. You can avoid such trouble by bringing your needs for felt to American. Tell us what the felt is to be used for, whether in a process or a product, and we will help you select the right type.

And remember, American operates cutting shops in Glenville, Conn., Detroit, Mich., San Francisco, Calif., which can quickly produce cut felt parts, ready for assembly, to speed your output.



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WHAT KINSEY DOESN'T KNOW ABOUT WOMEN

The learned Indiana professor knows a great deal about women . . . but he probably doesn't know what you men in industry know — That women will not be "regimented" when it comes to industrial work garments.

For America's Women-On-The-Job the 140 members of the Institute of Industrial Launderers offer individuality in women's industrial fashions.

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Benjamin Fairless Sees Sound Markets Awaiting Development

Benjamin F. Fairless, Chairman of United States Steel, New York, N. Y., warned the country could "predict" itself into a recession if business failed to recognize—and act upon—a ready and willing market for its goods.

Speaking before the Economic Club of Detroit, Mr. Fairless said American business today has the most challenging opportunity it has enjoyed in the past 20 years. "... the kind of America we live in tomorrow depends primarily on the kind of job we do today," he said. "I think the future of American business can be anything we want to make it; but certainly we shall never achieve the kind of future that you and I want in this country by following a policy of timidity, indecision and inaction."

Mr. Fairless pointed out the Government, in reversing the trend toward Socialism, has allowed business to return to free competitive enterprise. "The Government has begun to withdraw from competition with private enterprise," he said. "Prices and wage controls have been lifted and a free market has been restored. Inflation has been sharply checked. The cost of living index shows that we have an honest dollar again—a dollar that will buy almost exactly as much as it did 12 months ago."

Despite the fears of pessimists who are concerned about the absence of a backlog of consumer demand, Mr. Fairless said the present state of the nation's economy indicates a sound market which business should strive to develop. "Today more people have jobs in America than ever before in our history-about 631/2 million of them, in fact," he said. "They are also getting the highest wages in history. Personal income of the American people as a whole stands at an all-time peak. They are spending more money than ever before; and in spite of all they are spending, they still managed to save the fabulous sum of 17 billion dollars last year.

"The market is there, and the money is there, and all in the world we have to do is go out and get it! Do you believe for a minute that all of these millions of people, with all of these billions of dollars in their pockets, have already bought everything they need and want?"

(Please turn to page 348)



Here's how to plot a plane's Angle-of-Climb...

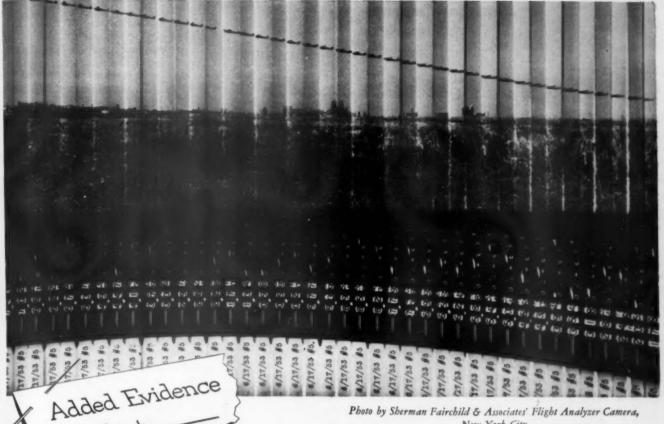


Photo by Sherman Fairchild & Associates' Flight Analyzer Camera, New York City

Everyone Can Count on EEDER-ROOT

New take-off technique yields an 8° climb, as this progressive single photo shows. And this is 100% improvement over old techniques . . . increasing safety and decreasing noise-annoyance at city airports.

Here you actually see 53 separate exposures. And each, reading from bottom up, shows the date and number of the flight photographed. Next above is a device which records the time ...exact to 1/1,000th of a second. And in the heart of this device is a Veeder-Root Counter.

So here again you see one of the heretofore uncounted ways in which "Everyone Can Count on Veeder-Root". What's your problem? Let us put our mathematical eyes on it. Write:

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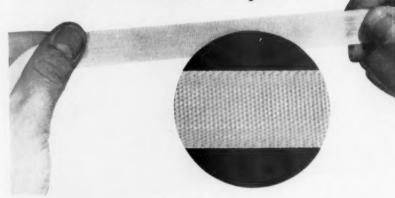
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CX WOVEN GLASS

Priced to Compete with Cotton Tapes!



AT LAST! ... a woven glass electrical insulating tape developed to compete with cotton tapes in performance and price. Now, cost-conscious manufacturers of low temperature apparatus can gain the benefits of glass tape . . . including resistance to moisture, dirt, and acid; high strength; space-saving thinness; and speedy heat conduction away from "hot spots."

INTENDED only for Class A insulation work, you may be able to use .004 inch Imcor Type CX glass tape to replace both .005 inch and .007 inch cotton tapes for permanent or sacrifice work. It is designed for tying, filling, and wrapping of coils and conductors in motors, armatures, transformers, controls, and other electrical units.

ECONOMICAL, continuous-filament glass yarns, which are treated to permit machine or hand winding of the tape, are used in Imcor CX glass tapes. Standard widths are ½, ¾, 1, 1¼, and 1½ inches.

PLAN NOW to test Imcor CX woven glass tape on a trial basis to determine its possibilities for your application. Ask your nearest IMC office for prices, samples, and specifications.

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(Continued from page 344)

Mr. Fairless took sharp issue with the "prophets of pessimism" who see a recession on a basis of declining steel production. He agreed that the steel market is an important gauge of the country's economy, but pointed out that the "prophets" have failed to see a true perspective on the present rate of production. Steel output last month ran 95 per cent of capacity, Mr. Fairless said, adding that production would remain in that "general neighborhood" for the balance of the year.

Additionally, Mr. Fairless asked those who predict a gloomy future to take into consideration these

"The American Steel Industry will produce, and will sell, more steel this year than ever before, in war or in peace, at any time in its history. In fact, present indications are that it will make about seven million tons more steel than it made in the all-time record year

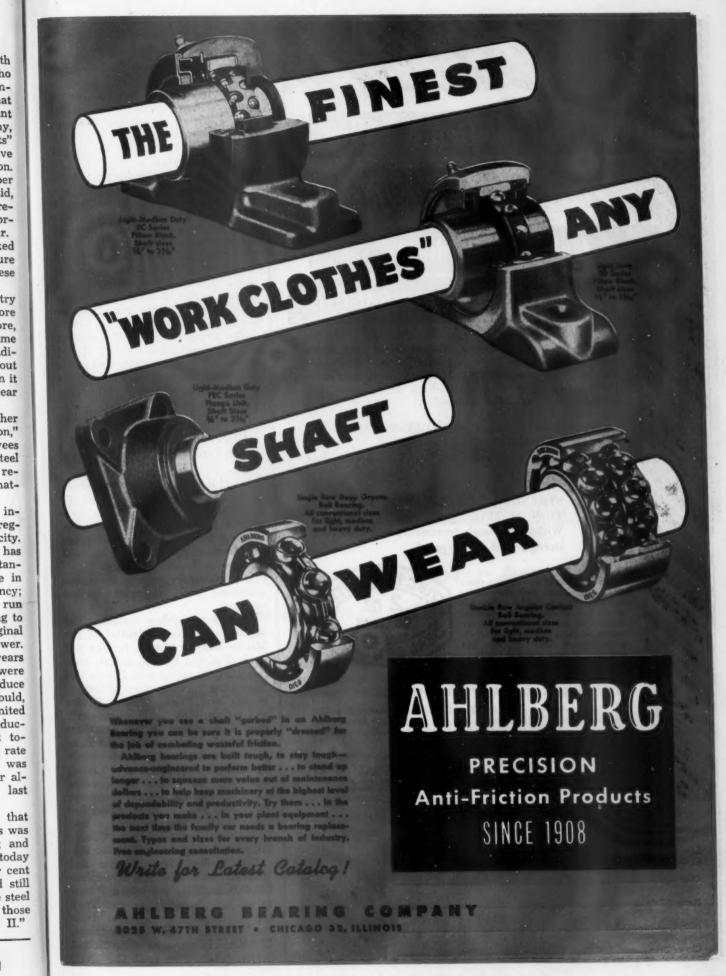
"And if that's what our Weather Men mean by the word "recession," I can only say that the employees and the stockholders of U.S. Steel would like to see that kind of recession for the rest of their natural lives.

"Steel plants were never intended nor designed to operate regularly at 100 per cent of capacity. Historically the Steel Industry has always had to maintain a substantial reserve of capacity for use in times of great national emergency; and at such times, it is able to run at 100 per cent only by resorting to the uneconomic use of marginal facilities, materials and manpower.

"Even during the wartime years of 1941 to 1945—when we were breaking our necks to produce every pound of steel that we could, and when the plants of United States Steel alone were outproducing all the Axis Nations put together-the average operating rate for the industry as a whole was just 94 per cent of capacity-or almost exactly what it was last month.

"But remember, of course, that our total capacity in those days was much smaller than it is now; and even if our operating rate today were to drop as low as 81 per cent of present capacity, we would still be producing, and selling, more steel than we did all through those frenzied years of World War II."

> SEE PAGE 374 CLASSIFIED SECTION



OCTOBER, 1953

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Galvanized Sheets

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Engineers and designers of industrial and commercial buildings know galvanized sheets to be superior building material for this type of construction particularly for roofing and siding. They know that time-tested galvanized sheets offer:

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All galvanized sheets give years of useful service. But the heavier the zinc coating, the longer the life of the base sheet. Because various weights of zinc coating look alike on the surface, it pays to specify a grade-marked sheet . . . Get the heaviest coating you can buy!



IT'S THE ZINC THAT STOPS THE RUST

For long, rust-free service, specify a heavy duty sheet such as the "Seal of Quality" with a zinc coating of 2 ounces per square foot. For heavier coatings order according to ASTM Specification A 93.

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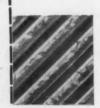
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New Resins Improve Plastics' Strength and Toughness

Two new synthetic resins which will improve the impact strength and toughness of molded plastic products have been developed by The Goodyear Tire & Rubber Company, Akron, O. They will be offered to the plastics industry under the name of Plio-Tuf.

Because the new resins give products greater hardness, higher resistance to heat and better tensile strength, they are expected to expand and create more uses for plastic materials.

Products molded from Plio-Tuf will resist action of acids and alkalies and will not be damaged by a large number of staining materials which plague housewives, Goodyear says.

The properties of Plio-Tuf make it ideal for molding such typical end products as automotive parts, television screens, luggage, plastic pipe and numerous other items which require high impact strength.

U. S. Chamber Offers Primer For Economics Study Groups

The Economic Research Department of the U. S. Chamber of Commerce has issued a set of 17 pamphlets in the form of an Economics Primer. It is designed for reading by the intelligent layman and particularly for setting up local Economics Study Groups.

Each pamphlet includes discussion questions and suggested further reading.

The 17 pamphlets include: The Mystery of Money; Control of the Money Supply; Money, Income and Jobs; National Income and Its Distribution; Progress and Prosperity; Sustaining Prosperity; Demand. Supply and Prices; Prices, Profits and Wages; Why the Businessman?; How Competitive is the American Economy?; Understanding the Economic System and Its Functions; Spending and Taxing; Taxing, Spending and Debt Management; Labor and the American Economy; Individual and Group Security; International Trade, Investment and Commercial Policy; Ethics of Capitalism; (The set is available for \$6).

Two leaflets, Why Discuss and Wanted: Men Who Know, explain the Primer. They tell why and how to set up discussion groups. They are available upon request from the Economic Research Department, Chamber of Commerce of the United States, Washington 6, D. C.



Man with stapler beats man with glue 10 to 1

This actual race took place in a rubber products plant. The man at left sealed cartons with glue. His companion used a Bostitch Autoclench Stapler, and averaged 10 times more cartons per hour. The manager happily reports savings of 70% in time and materials.

His shipping men are happy too. Gone are the gluepots, dripping brushes, spattered aprons. No more "glue-cake" on floor or hand truck. No "weighting" of sticky carton flaps. Cartons go off faster, cleaner, and can be re-used. And as the men are paid on piecework, take-home pay is bigger.

The Autoclench is just one of 800 kinds of Bostitch staplers that trim time and costs on thousands of different fastening jobs in factory and office. To help you fit the right stapler to the right job, Bostitch has 325 Economy Men working out of 123 cities in the U.S. and Canada—by far the largest and best trained group of its kind.

Check over your own fastening methods with your nearest Economy Man. There's no obligation. He'll be glad to tell you honestly whether stapling can save you money.

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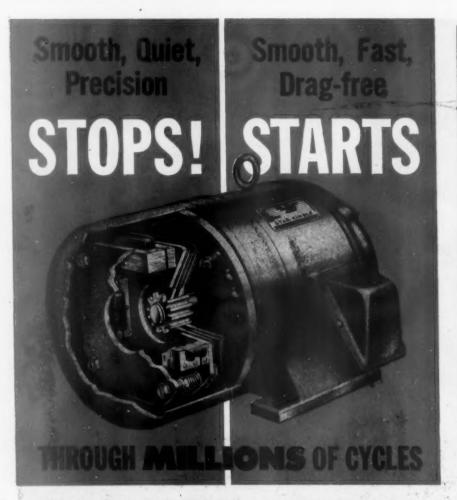
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WITH STAR-KIMBLE BRAKEMOTORS

Stepping of a Star-Kimble Brakemotor is split-second in action, precisely timed by simple adjustments. Quiet, too — no lining screech. Low lining pressure, evenly distributed, assures long brake life. Brake is self-adjusting to compensate for lining wear — ruggedly built to withstand shock and vibration.

Braking force is spring applied, magnetically released. No linkages to cause lost motion or friction.

Starting of a Star-Kimble Brakemotor is smooth and free from drag. Small magnetic air gap assures quick brake release without high inrush current.

And Star-Kimble Brakemotors maintain this fast, smooth stop-start operation through millions of cycles with little or no maintenance attention. Brake and motor are designed together to work together as a single compact unit. One manufacturer, one responsibility — backed by years of experience. For details on construction, motor ratings and braking torques, write for Bulletin B-501-A.

Standard and special motors of all types, 1 to 600 hp; Marine motors $\frac{1}{2}$ to 600 hp; generators and motor-generator sets, 1 to 500 kw.



New Production Method for Copper Foil Printed Circuits

Erie Resistor Corporation has announced development of a new method of producing copper foil "printed circuits." A patent application has been filed covering the basic new principles involved.

This process involves embossing copper foil in laminated Bakelite sheets with the depressed portions representing the wiring form desired. After this operation, which is performed during the curing process of the Bakelite, the unwanted part of the copper foil is removed mechanically.

Copper foil circuits are used to simplify and eliminate possibilities of wiring errors in the construction of all types of electrical equipment. At the present time they are used principally in the production of radio and television sets.

Advantages of the new Erie method of producing these parts are expected to be economy of production and elimination of the use of chemicals in contact with the insulating material during manufacture.

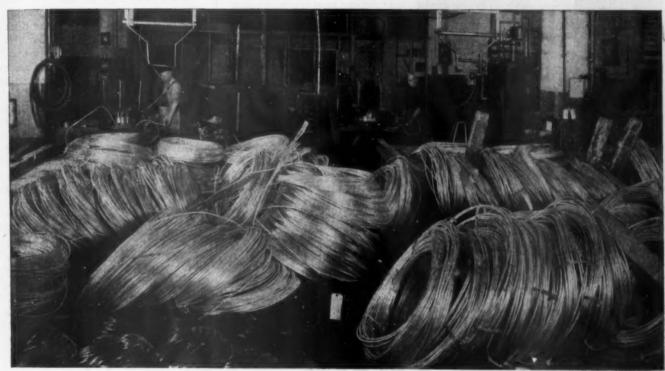
CBM Adopts New Emblem



The Certified Ballast Manufacturers have adopted a new emblem to identify Certified Ballasts. The new design is diamond-shaped and reads "CBM CERTIFIED by ETL." With more than half the fluorescent ballasts now produced meeting the exacting specifications designated by Certified Ballast Manufacturers, the nine companies making them decided stronger identification of these quality ballasts was needed. Certified Ballasts will carry the new emblem on printed labels and stamped into the ballast case.

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Need Wire with Higher "I.Q."?

Is your copper-base alloy wire giving the higher "I. Q." (Inner Quality you need for . . .

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- ... Fewer rejects and greater metal economy?
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Bridgeport's brass and silicon bronze wire have the higher "I.Q." which is necessary for making difficult cold headed and roll threaded parts. They are made under strict laboratory control to meet your requirements and specifications exactly.

Specify silicon bronze 609 for screws with unusually large heads. No heat treatment is required on the finished parts.

Take advantage of Bridgeport's long experience in supplying screw wire of the correct temper, surface finish and alloy composition required for modern mass production methods. Our laboratory will gladly work with you to solve your metal problems.

Write for Bridgeport's "Technical Handbook" for additional information on wire alloys for cold working and help on your metal requirements.

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OCTOBER, 1953

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Every feature of tomorrow

IN TODAY'S NEWEST COOLERS!







Miniature Fire Engine Used In Navy Installations

Companies with large installations or widespread territory to cover will be interested in the Navy's use of "miniature" fire trucks at several bases and air stations. Announcement of employment of the experimental fire engine was made by the Navy Bureau of Aeronautics and Willys Motors, Inc.

Chief advantage of the new unit is its ability to negotiate rough terrain to fight forest and brush fires. Nicknamed the "Ranger" it can also be used in the place of the larger, standard "pumper" at outlying bases where it would be uneconomical to assign a major fire truck.

The Navy's first fire-fighting miniature, built by Willys and Mobile Fire Apparatus, Inc. of Indianapolis, is capable of pumping 500 gallons of water a minute at a pressure of 120 pounds per square inch. Its "booster" tank carries 150 gallons of water.

About half the size of the standard Navy fire trucks in use today, the new Willys vehicle will be tried out as a replacement at naval bases where buildings are few and far between, and as auxiliary equipment at large naval installations. The Navy's new Ranger is expected to prove more maneuverable than present-day equipment in fighting fires at close quarters.

Film Combines Properties of Plastics and Rubber

A new rubber film which combines properties of plastics and manmade rubber and can be electronically sealed to itself has been announced by The B. F. Goodrich Company.

Called "Vulcafilm," the new material permits the assembly of shapes or vessels of any size with fused, homogeneous seams throughout. The electronically "welded" seams become stronger than the material itself and cementing or taping of seams is not required.

According to B. F. Goodrich, the new material was used recently to make an oil tank diaphragm believed to be one of the largest allrubber products ever made. While unsupported by fabric in this installation, Vulcafilm can be combined with many types of fabric reinforcement. The compound itself may be varied to obtain resistance to oil, gasoline, sunlight, heat, cold, abrasion and acids.

SWEET'S

The Speedline system may cut your stainless piping costs in half!

• Here is a new idea in corrosion-resistant piping that combines important savings and engineering advantages. The Speedline system achieves these results by using light wall stainless pipe and the versatile Speedline Fittings which speed assembly time and give you tight, leak-proof joints.

As one engineer said: "We started to use Speedline Fittings with light wall pipe to save money. Now we find that we also get better flow conditions and increased capacity in our lines."

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If you are now using Stainless Pipe...

... chances are that it is the conventional Schedule 40. But this heavy wall is not needed in 90% of the cases. Light wall Schedule 5 pipe costs about half as much, and all sizes will easily withstand 150 p.s.i. working pressures. Speedline Fittings are specially designed for fast, low-cost installation of light wall stainless pipelines. And because light wall pipe of the same size has a larger inside diameter than heavy pipe, you gain 15% to 25% greater flow and capacity!

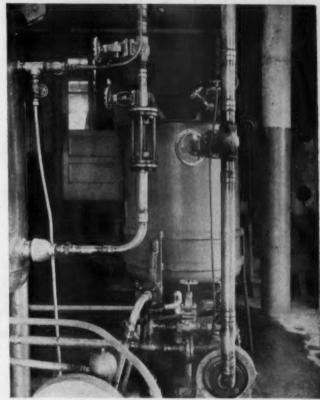
If you are now using Stainless Tubing...

... the Speedline system offers real savings and advantages. It permits you to change to a light wall pipe rather than tubing size—at no increase in cost. And here's where you gain. Standard equipment like valves, pumps, sight gauges, etc., are made in pipe sizes—you hook right in without special adapters! And equally important, piping permits you to use the next lower dimension (for example, 1" Sch. 5 pipe has even greater capacity than 1½" O.D. tube). This means that you can use smaller valves, flanges, and other accessories—an entire installation would be considerably lower in cost.

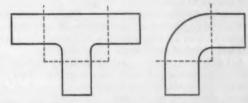


WRITE FOR THIS FREE BOOK

Just write a note on your company letterhead and we will mail the Speedline catalog to you. It shows why you get better results at less cost with Speedline Fittings.



Speedline Fittings and light wall stainless pipe in the process lines of an Eastern plant. Note how piping hooks directly into standard valves and sight gauges.



Look for the "Tangential Feature"

These drawings show a Speedline Tee and 90° Elbow. The dotted lines show the termination points of conventional fittings. The additional straight section of Speedline Fittings permits attaching of unions or flanges without fouling, reduces the number of welds required, and eliminates troublesome curved or angle joints. The tangential feature is common to all Speedline Fittings such as Ells, Tees, Crosses, etc.

Speedline distributors are located in principal cities from coast to coast



Corrosion-Resistant FITTINGS

-the newest thing in pipeline economy

Manufactured by HORACE T. POTTS CO. • 530 E. Erie Avenue • Philadelphia 34, Penna.



You have to expect some erasures here and there on your drawings. But watch out! When those drawings get to the blueprint stage, lines can become weak and washed out . . . just ghosts of their former selves.

That's why Arkwright Tracing Cloth is preferred by so many architects, engineers and draftsmen. Arkwright is especially treated to take all the erasing you'll normally ever give it . . . and still provide good, clear blueprints.

Arkwright supplies a perfect working surface . . . free of heavy threads, pinholes and other imperfections. And Arkwright

defies old age, too. Edges never get ragged; drawings never turn yellow or brittle. They retain their transparency, year after year — giving you the permanency you want.

Here's a fair offer. At our expense, accept a free sample of Arkwright Tracing Cloth. Work with it. See if you don't agree that Arkwright has well-earned the title "America's Standard". Arkwright Finishing Co., Industrial Trust Building, Providence, R. I.



Tracing Cloths





Toward Better Specifications

(Continued from page 111)

As previously stated, the specification should be assembled with a functional cover sheet, neatly arranged and simple in form. It should contain project identification, title, number and origin of the specification, along with dates of issuance and revisions.

Provision for recording approvals may be included on the cover sheet, although this tends to detract from appearance where more than one approval is involved. There is a natural tendency toward placing approval signatures on the last page, where signatures for most documents are customarily found. When this is done, an abbreviated approval notation is placed on the cover sheet.

By employing different colored paper for preliminary and approved issues, the status of any particular specification is obvious.

Attention should be accorded the method of numbering pages to minimize errors resulting from improper assembly or the loss of any page. Attention should also be accorded the means of duplication so as to insure legibility and good appearance of reproductions.

Like most other engineering assignments, in actual practice the preparation of specifications must be accomplished within known limits of time and cost. Since the progress of procurement, plan development, and other phases of work is dependent upon performance of the specification activity, early completion of specifications is essential to the success of an entire project, especially in time of emergency. It follows that the practical objective of the specification activity is to produce specifications quickly and economically, which will effectively serve their intended purpose, more so than to achieve the summit of perfection in the specification as an example of literary exposition; for in the final analysis the worth of a specification is reflected in its cumulative effect upon procurement, plan development, and construction, as well as the adequacy of equipment actually installed.

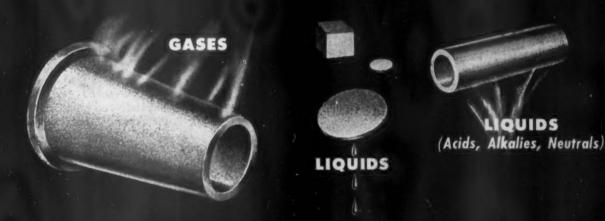
Yet it is equally apparent that clarity, completeness, and accuracy should never be sacrificed in the interest of speed, as ambiguity in specification presentation defeats its

(Please turn to page 358)

OILITE Permanent Metal Filters

Oilite PERMANENT FILTERS Provide:

- · Durability, Strength, Fool Proof Operation, and Savings
 - . Filtering of Liquids and Gases
 - o Broad Range of Permeability, or Pore Size
 - Effective Dampening, Diffusing, Regulating,
 Separating, Flame Arresting, and Metering
 - o Made of the Metal the job requires
 - e Small, Medium and Large Sizes, too
 - e Low Part Cost





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FIELD ENGINEERS, DEPOTS AND DEALERS THROUGHOUT UNITED STATES AND CANADA

Oilite Products Include: Bearings, Finished Machine Parts, Cored and Solid Bars, Permanent Filters and Special Units

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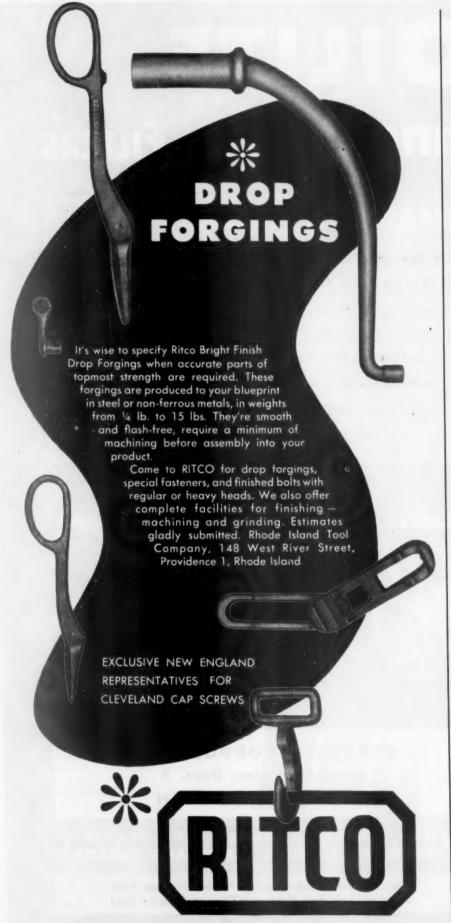
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Toward Better Specifications

(Continued from page 356)

own purpose and can only be detrimental to the program as a whole.

Reconciliation of these factors is necessarily a matter of good judgment. The method of preparing specifications as set forth above has been applied successfully both in satisfying the practical considerations of time and cost as well as the requirements for producing clear, accurate, functional specifications. While this discussion has been in terms of specifications for a particular project, it is equally effective in the development of standard specifications, the merits of which are self-evident.

Purchase Order Forms

1 1 1

(Continued from page 100)

tional attention and a pointing hand was inserted on the acknowledgement copy to remind the vendor that a shipping date should be specified. This is expected to help in getting delivery promises essential to scheduling and follow-up. At present, the hecto Master copy provides a simple ruled form at the bottom for the convenience of the expediting section in recording follow-up action taken; but there is a possibility, now under consideration, that at some future time there may be a separate master form prepared for this space to correlate receiving reports with the Purchase Order copy, since the flexibility of the duplicating process for making additional copies is admirably suited to the handling of individual reports on partial de-

It should be repeated that the Norden Purchase Order form has been developed particularly with the requirements of this specific company in mind. Consequently it may not be exactly adapted to the conditions and requirements of another organization, just as Norden did not find the forms of other companies suitable for exact duplication. Nevertheless, there are many features of this form that other purchasing agents will find helpful to their own needs. Most important, however, is the way in which this problem has been approached and developed to arrive at the most efficient working tool possible. That principle is adaptable to every purchasing department.

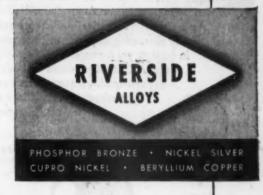
SERVING AMERICAN INDUSTRY SINCE 1834 *

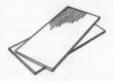


Beryllium Copper (BeCu in metallurgical shorthand) is a leader in the "resistance movement." It's uncanny the influence a few per cent of Beryllium can exert on pure copper... the added properties the alloy has over the base metal alone.

Beryllium Copper can be hardened by heat-treatment. It has high electrical conductivity and qualities that resist wear, corrosion and fatigue, making it ideal for switches and other electrical applications. BeCu is truly a versatile alloy, useful in many fields.

Riverside Alloys are Industry's Allies. Send for the Riverside Handbook, the pocket-size reference and guide to alloy specifications. The Riverside Metal Company, Riverside, N. J. Branches in all principal cities.





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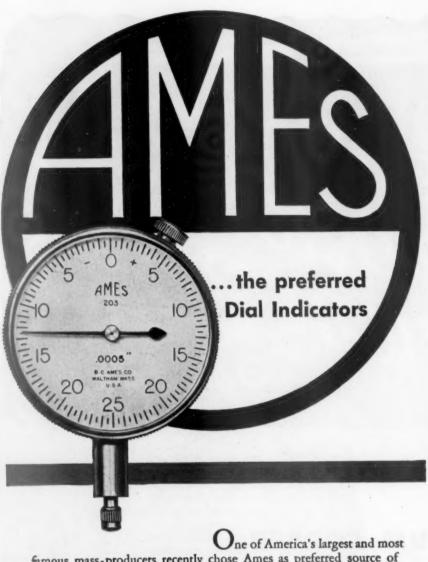
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WIRE



Free pocket-size Alloy Handbook. Your reference and guide to Alloy specifications. Write today.



famous mass-producers recently chose Ames as preferred source of

supply for indicator gauges.

The reasons behind this decision are the very reasons why you should standardize on Ames dial indicators and dial gauges: - the Ames "Hundred Series" indicators available in four sizes, fit every measuring requirement; they are accurate, sensitive, low in friction, yet are rugged and tough - give more on-the-job time. All Ames products embody latest design and highest-quality materials; they are manufactured by methods and machines that are exclu-

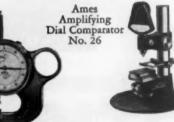
sive with B. C. Ames Co.

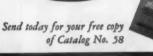


Ames Dial Depth Gauge No. 11C



Ames Dial Micrometer No. 517





Ames Small

Hole

Gauge

No. 36

Representatives in B. C. AMES CO. Waltham 54, Mass Mfgr. of Micrometer Dial Gauges • Micrometer Dial Indicators

Sales Made on Approval

(Continued from page 95)

The purchaser in this instance continued the operation of this equipment from May 26th until the middle of the following July. When sued by the manufacturer for the balance of \$13,844.57 remaining unpaid under the contract, the buyer contended the plant was unsatisfactory and insisted on its right to reject it.

Sustaining a judgment against the buyer for this unpaid balance, the Illinois appellate court said of the implied waiver of this sale provision by the continued use of the equipment,

"Even though the purchaser had determined to reject the plant, it could not retain the possession of the property and use it for its own profit in its business and at the same time insist upon the rejection. The two things are utterly inconsistent. Where the buyer is actually accepting and using the plant, its words of rejection are unavailing.

"Where machinery has bought on approval, tried, found defective and unsatisfactory, and notice of rejection has been given, and where nevertheless the purchaser has continued to use the machinery, such use amounts to a waiver of the right to return the machinery and an election to accept it."

Manner of Return

If an agreement under which the articles have been delivered on approval expressly stipulates the manner of return, those stipulations must of course, be followed by the buyer in his rejection, if he would relieve himself of liability. When the agreement is silent in this particular the law, as outlined by one authority, provides,

"In a case where the contract is indefinite as to the place to which the article is to be returned if it is not approved by the buyer, it will be presumed that the place where the seller delivered the article to the buyer is the place of return.

The principle which underlies the rule that the delivery of goods by the seller to a responsible carrier, properly consigned to the purchaser, is a delivery to the purchaser, operates where the purchaser to whom the goods were thus delivered, having accepted them on approval, desires to return them."

A gasoline engine, sold on ap-(Please turn to page 364)

4 WAY MIXING ACTION PRODUCES HOMOGENEOUS with the STURTEVANT BLENDER BLENDS...
Reduces Mixing Costs -TRYPARTIENTS HERE'S HOW IT OPERATES

RECEIVING

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As the materials are received, they are picked up by scoops and cascaded from the top of the machine. At the same time, the revolving drum forces the materials from both ends toward the center of the drum... while the swinging chute, which is in mixing position, produces a fourth lateral mixing action.



DISCHARGING

By simply throwing a lever, the inlet is closed and the blender is in discharging position. The completely mixed materials drop of the lifting scoops and discharge through chute without segregation of ingredients.

Four separate mixing actions in the Sturtevant Blender assure complete blending of various materials regardless of weights, densities, finenesses, or other physical properties.

This mixing action provides a thoroughly blended product with no substances floating to remain unmixed.

Sturtevant Blenders are available in mixing capacities from 500 to 20,000 pounds. Write for information or engineering assistance.

STURTEVANT MILL COMPANY

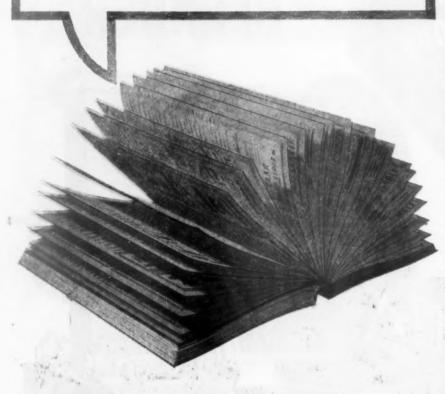
107 CLAYTON STREET, BOSTON 22, MASSACHUSETTS

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"That P.A. sure keeps me busy"



"See the way that Purchasing Agent's face lights up as he flips my pages. He stops at the name of the supplier he needs. His troubles are over.

"Yes, I've put him on the path to many a supplier . . . given names and addresses and telephone numbers, as well as other information.

"I can do the same for you. I'm the 'yellow pages' of your telephone directory."

AMERICA'S BUYING GUIDE FOR OVER 60 YEARS



Sales Made on Approval

(Continued from page 362)

proval to a Minnesota purchaser, was rejected by him and the seller refused to accept its return. The ruling of the Minnesota Supreme Court on this particular feature of that case has frequently been followed by other courts as an authority.

"In the case of an executory agreement to furnish a piece of machinery guaranteed to work satisfactorily, the person to whom it is furnished has the right to make a trial of it, reasonable as respects both time and manner, before formally accepting it, and the right to reject it if it does not work satis-

factorily for him.

"If upon reasonable trial it does not work satisfactorily, it is not necessary for him to return it in the absence of an express agreement to that effect, but it is sufficient if within a reasonable time he notify the person furnishing it in substance that it does not work satisfactorily and that he declines to accept it.'

Borderline Ethics

(Continued from page 97)

for weeks afterwards the shop difficulties and additional costs served as a poignant reminder to this official that in purchasing, as in everything else, two unethical actions do

not make a right one.

During the war days, when paints (among other things) where scarce and hard to procure, a slick paint salesman called on a buyer and put on a demonstration intended to show that his products were better than competitive coatings. In order to do this, he carried a kit containing samples of his own and competitive enamels, and brushed them on strips of cardboard on which heavy black lines had been printed. The finishes made by the salesman's company invariably covered the black lines in one application, but the streaks could always be seen after the competitors' coatings were

The buyer watched closely, and asserted, "No wonder your competitors' coatings don't look good. You're putting too much pressure on the brush when you apply them, but flowing your own on the card."

The salesman, an old-timer, simply laughed as he packed up his kit. (Please turn to page 366)

364

Gives white hot steel the "kid glove" treatment



GIGANTIC MACHINES with thousands of moving parts are used to shape white hot ingots into plates and sheets. All of these hard-working machine parts are subject to intense heat . . . normal in steel manufacturing. Because of the intense heat, lubrication is a serious problem.

U. S. Steel has tried various types of greases in order to eliminate the problem of oil burn-out. Now they're using a product of Shell Research, Shell Alvania Grease. Result: better lubricating action at once. Months after the original installations, rollers were removed and an excellent film of grease was still present.

At the other extreme, zero weather caused grease in an automatic lubricating system to congeal and become unpumpable. Shell Alvania was tried and clogging promptly stopped. This multi-purpose grease is now used extensively in low-temperature operations at U. S. Steel's Ohio Plant.

SHELL ALVANIA GREASE



- resists oxidation
- will not squeeze out
- extends periods between overhauls
- provides exceptional lubrication in high or low operating temperatures.

Shell Alvania Grease can cut down costly maintenance and save time and money in *your* plant. Write for technical information.

SHELL OIL COMPANY

50 WEST 50TH STREET NEW YORK 20, NEW YORK 100 BUSH STREET SAN FRANCISCO 6, CALIFORNIA

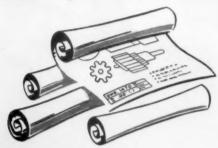
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you need precision parts like these
... you have specifications like these



you should bring your problems to HISTON

Delivering millions
of Swiss-made precision parts
on schedule
and at a competitive cost
is a specialty of HISTON



LONGACRE 5-4353 - 4

Borderline Ethics

(Continued from page 364)

"Son," he said, I've been using that trick for twenty years, and have met mighty few men who saw through it. But it isn't going to do you much good. Okay, they're all pretty much alike. Other companies may make paints as good as ours, but it happens that right now we're the only company with any amount of paint to sell. And, personally, I prefer to sell my share to somebody who isn't quite as wise as you are —somebody who will see it my way, and whom I can count on as a customer when the war is over."

Clad Metals for Industry

(Continued from page 115)

composites have been found in a wider and wider range of industries, including chemical, electronic, refrigeration, electrical equipment, tools and tooling, and mechanical industries.

Metallurgists believe that there are numerous other metal-using industries today which might well find substantial economies, build up improved performance, reduce product weight, and obtain easier working characteristics in metal combinations now available or in special combinations designed to meet specific and peculiar problems. Field engineers specializing in this development work are available to make studies of individual manufacturers' special needs, to determine whether or not a composite would provide the answer to a manufacturing, performance, or cost reduction problem.

> Be Sure the Law Is on Your Side

(Continued from page 124)

for the merchandise and send notification to the seller of an intended suit, and compromise the controversy by acceptance of an amount equal to all damages sustained, plus the profits he would have earned if the seller had not breached the contract; or he may accept the unsatisfactory or defective merchandise and pay the seller an amount of money equal to the exact market value of the goods delivered, minus the damages which resulted from the seller's breach.

> See Classified Section Page 374



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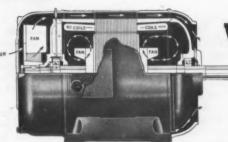
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POWER ECONOMY

at its money-saving best!



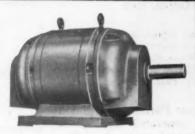
The newest and most successful development in air cooled motors. Totally enclosed, constant speed, continuous duty, squirrel cage induction, high torque, low starting current.

VALLEY Ball Bearing MOTORS

- COOL RUNNING—for continuous service, in high temperatures.
- ENCLOSED BALL BEARINGS—afford protection against harmful dust and grit—reduces friction 75%—cuts power costs.
- OVERLOAD CAPACITY—can handle any power load emergency—without damage to the motor.

SEMI-ENCLOSED—DRIP AND SPLASH PROOF!

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... is expanding!

Indiana Glass Company, with its new Subsidiary The Sneath Glass Company, can now handle many of your commitments

If you use, or contemplate using Glass, including Boro-Silicate, or Heat Resisting Glass, by either hand or machine methods, let Indiana work with you.

Write for technical help, indicating, if possible, the application you have in mind,

ECONOMIC ORDERING OUANTITIES

We are interested in obtaining, if possible, reprints of any articles you have published pertaining to minimum economic ordering quantities.

W. C. Jones, Asst. Works Mgr.

W. C. Jones, Asst. Works Mgr Underwood Corporation Bridgeport, Conn.

Basic articles on this subject are "Purchasing Profits through Inventory Control" by B. D. Henderson (November 1947 issue), and "Buying the Right Quantity" by W. J. Roemer (December 1947 issue).— Ed.

INDUSTRIAL SALESMANSHIP SURVEY

Please check (a) Section 2, in your chart "How Can Industrial Salesmanship Meet Today's Problems?" (Purchasing Opinion Survey, August, 1953). This asks: "What proportion of present sales would you classify as merely routine?" Do you mean sales calls?

L. W. Van Denburgh

Mercready, Handy & Van Denburgh Newark, N. J.

• Sharp-eyed reader Van Denburgh is correct. 58% of our survey correspondents reported that more than half of present sales calls are of a routine nature.—Ed.

Your report contains good information, some of which I plan to incorporate in our next sales meeting.

Jack B. Weil Magnesium Co. of America East Chicago, Ill.

This information is very timely, and we would like to have 8 additional copies for distribution in our organization.

Fred L. Hooper, Vice Pres. The Cambridge Wire Cloth Co. Cambridge, Md.

When one realizes that over 50% of the calls that are made are classified as routine, we sure have a selling job to do among salesmen. If this survey had brought out only that one fact, it would still have been very worth while.

R. Kennedy Hanson, Gen. Mgr. American Supply & Machinery Mfrs. Assn., Inc. Pittsburgh, Pa.

I am very much impressed with the report. The information will be of tre-

mendous help in our planning for the more competitive days ahead.

O. C. Kebernick, Div. Mgr. Westinghouse Electric Corp. Pittsburgh, Pa.

Would you be so kind as to furnish us with 30 copies of this report for distribution to our various District Managers.

E. L. Lee, Asst. Sales Mgr.

Saginaw Products Corp.
Saginaw, Mich.

Neatly and concisely presented—excellent.

Parker Holden, Pres.

Holden-Clifford-Flint, Inc.

Detroit, Mich.

A fascinating report—most interesting and worthwhile material.

Frank R. Chase Multi-Clean Products, Inc. St. Paul, Minn.

• The August Purchasing Opinion survey has generated tremendous interest among sales executives. The above letters are but a small sampling of the comments and inquiries received. To date, more than 7,000 reprints have been mailed out on specific requests, chiefly for distribution to sales organizations—Ed.

PUT IT IN WRITING

This Purchasing Opinion ballot (Hours for Interviewing Salesmen) touches very closely on another subject that I am sure you will find of vital interest to all purchasing people. Not only does it waste a great amount of time, but it also results in unnecessary expense and causes confusion.

I refer to the growing tendency of many people to neglect the doing of good sensible business in writing by resorting to the easier procedure of using the telephone. I realize that the telephone does not leave any written record, which in some cases may be an advantage, but the fact that there is no record has often caused diffculty.

It is not unusual to have long distance calls come in from people occasionally thousands of miles away, anxiously endeavoring to make an impression in response to an inquiry mailed to them sometimes weeks or months ago. There are also suppliers' people who make sales contacts by telephone as a regular routine, just to talk things over. Would that I were one of those purchasing people who have sufficient time to properly enjoy such visits.

Another bad habit is to place a call

to a busy purchasing agent or buyer and then make oneself unavailable to their own operator when the call finally comes through, with the result that the called party must hang on the line and wait for the party who placed the sometimes unnecessary call to be located and get back to his desk.

Perhaps Purchasing can revive the ancient but highly valuable axiom of "Put it in writing." The sin is not all on the part of sales people, and I feel sure that the large majority of telephone calls are necessary and do serve a valuable purpose. Many of the people with whom I talk are highly skilled in the art and do not waste even one second; however, there are many exceptions.

Lloyd Bender, Vice Pres.

Lloyd Bender, Vice Pres. The North Electric Mfg. Co. Galion, Ohio

COMMODITY INDICES

Our Accounting Division is making some studies pertaining to inventory control, and has asked us for some comparative figures which we do not have.

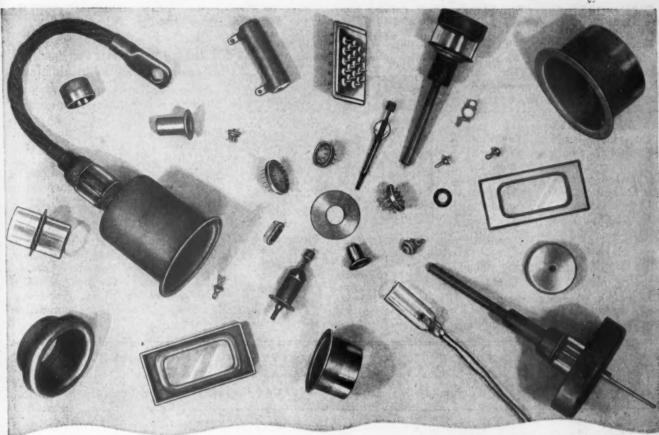
During the fiscal year 1946-47, we established a new policy for inventory control. Our inventory on June 30, 1947, was approximately \$2.2 million. This inventory on June 30, 1953, totalled \$3.75 million. Our inventory is made up principally of foods, clothing, fuel, and general building maintenance items. We would like to get an index of the wholesale prices covering these four commodity classes for the two dates specified above.

J. Stanley Bien, Director State Purchasing Division Lansing, Michigan

• There are two applicable indices covering the first three items of this inquiry. We do not have access to an index of building maintenance items. In each case, the yearly and monthly figures are averaged, so that there may be a slight variance as of the specific June 30 date.

Bureau of Labor Statistics Wholesale Commodity Prices Revised Series, 1947-1949—100

	Foods	Textile	Fuels
		Prods.	
1947 (avg.)	98.2	100.1	90.9
June 1953			107.6
Consu		erence Bo a rice Inde x —100	ru
	Food	Clothing	Fuel
1947 (avg.)	203.2	150.9	114.3
1953			
(6 mo. avg.)	229.7	150.7	140.1



Partial Assemblies Courtesy of Hermetic Seal Products Co

Now 4 D-H Special Alloys Cover Most Glass-to-Metal Sealing Needs

From a single source, the Driver-Harris Company, you can now obtain metal alloys to meet your glass-to-metal sealing needs for both hard and soft glass.

NEW ALLOY THERLO* This cobalt, nickel iron alloy, possesses ideal properties for sealing hard or thermal shock resistant glass. It matches such commercial hard glasses as Corning 7052 and 7040 in expansivity from 80°C to the annealing point. It produces a permanent vacuum-tight seal with simple oxidation procedure and resists attack by mercury. Readily machined and fabricated, it can be welded, soldered or brazed.

DRIVER-HARRIS 142 ALLOY contains 42% nickel. This is the standard alloy for sealing into sealed beam auto lamps using Corning 776 glass. Used with a borated copper coating, it is the accepted seal for incandescent lamps and radio tubes and matches 8160 glass.

DRIVER-HARRIS 52 ALLOY contains 50% nickel. It provides a slightly higher coefficient of expansion than the D-H 142 alloy and seals successfully with 0120 glass.

DRIVER-HARRIS 146 ALLOY contains 46% nickel. It offers special expansion properties, which permit seals with ceramic coated materials as shown above.

Manufactured to the same high standards that have made Driver-Harris the leader in special purpose alloys for more than 40 years, these alloys are available as rod, wire, strip, sheet foil—and in special shapes. They enable you to meet your specific sealing needs from a single source—so why not consult us today.



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OCTOBER, 1953

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